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THE PROFESSIONAL GEOGRAPHER

CONTENTS

Page

PROFESSIONAL NOTES
"American Geographic Research on Russia" by W. A. Douglas Jackson 2
"Macrogeography and the Census" by William Warntz 6
"The Oblique Plane Air Boundary" by Saul B. Cohen 11
"A Coefficient of Intercultivation" by Bryan H. Farrell 15

ASSOCIATION AFFAIRS 17

ANNOUNCEMENTS & REPORTS 26

LETTERS TO THE EDITOR 29

NEWS FROM GEOGRAPHIC CENTERS 31

THESIS TITLES 33

PERSONAL NEWS 42

NEW PUBLICATIONS 43

AMERICAN GEOGRAPHIC RESEARCH ON RUSSIA

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In conjunction with the Tenth Anniversary celebration of the Harvard Russian Research Center, a conference on the progress of Russian studies in the United States met at Cambridge, January 30-31, 1958 under the auspices of the Joint Committee on Slavia Studies (appointed by the American Council of Learned Societies and the Social Science Research Council). Reports on research in ten disciplines were presented and discussed: social relations, architecture, music, history, natural science, linguistics, literature, economics, political science, and geography.

The primary emphasis of each review was on research undertaken since World War II by American scholars and institutions outside the government. Each review attempted to summarize the chief research accomplishments, to evaluate them, to note major gaps and deficiencies in the research effort, and to suggest fruitful lines of research. No attempt was made to cover all research; indeed the report was not intended to constitute a comprehensive bibliography.

It was my privilege to review research in the geography of the USSR. The following is a part of my report. Copies of the entire review are available from the author on request.

The Underdevelopment of the Discipline. This is not the place to attempt a thorough inquiry into the reasons why geography is an "underdeveloped" discipline in Russian studies. Some of the factors responsible for retarding its growth, however, must be recognized if a path to future progress is to be found.

Most of the current writers bring to their study a solid grounding in geography as well as a certain degree of familiarity with the language and the culture of the Russian area. Much of the writing which appears in our professional journals is based on primary or Soviet source materials, and clearly reveals the efforts of American geographers to rise above a mere recording of facts concerning Soviet geographical development. But there are too few trained geographers attempting the study of Soviet growth and change.

The question that immediately arises then, is a simple one. Why are so few geographers attracted to the study of the Russian area? Perhaps the answer lies in the fact that they are overwhelmed and repelled by the considerable amount of time and energy they must expend to gain familiarity with the language and culture of the area, over and above that required to gain competence in their own discipline. It is not likely, therefore, that the geographer who has specialized in the Russian area, will find at any one time that he has more than a handful of students studying under his guidance. The mortality rate, too, is high.

The problem goes deeper. Geographical training is available at a large number of universities in this country. Unfortunately, it is not always of the most effective type. For the geographer, a knowledge of the concepts and methods of the physical or social sciences, depending on his major interests, is of prime importance if he is to analyze geographically these phenomena pertaining to his area of study. Yet, all too often his training has consisted of absorption of empirical and descriptive information about regions and their characteristics, without adequate preparation along systematic lines. Essentially then, the need is for geographers who can apply themselves effectively to the study of the pertinent phenomena in any given region, in this case, of course, the Soviet Union.

At the same time, young geographers who are building a sound foundation in geography must have access to the training afforded by the area program, which provides valuable opportunity for interrelated study in several disciplines. It is possible, at present, to combine training at the graduate level, in both major discipline and area, at only a few institutions. The alternative compels the geographer to undertake at some point in his graduate work, an intensive program of area and language training at one of the major centers of Russian study away from his home university. Neither of the two major eastern centers for Russian studies, Harvard and Columbia, it is to be regretted, have participating geographers, supported by solidly established geography departments. These centers attract the greatest number of students interested in the Soviet Union, but there can be no contact with the geographical approach, a contact which might stimulate them to undertake to build, simultaneously with their area specialization, a sound foundation in the neglected discipline. Such centers, therefore, should be encouraged to broaden their programs to include training in geography.

Clearly, a program of study which will make the young geographer proficient in Russian and at home in the Russian area, or the young area specialist a capable geographer, involves a period of intensive application which normally will carry the student beyond the time usually assumed for the doctorate. If superior students could be assured financial assistance to facilitate their lengthened studies, it is conceivable that the net result would be more geographers in the Russian area.

Other factors which bear on the retarded role of geography in Russian area studies are associated, not so much with the problems of providing good students with the best possible training, but rather with the difficulties confronting the mature scholar in his research. Field work has always been an important method of geographical research, but for at least the last twenty years it has been impossible to undertake field work in the Soviet Union, although brief travel now seems a reality. Inability to travel extensively and to study firsthand the area of interest has a dampening effect on the morale and work of the geographer. On the other hand, the lack of readily available quantitative data, necessary to meaningful geographical analysis, has resulted in a spotty American literature on the Soviet area. Geographers have worked, it could be said, where they have been permitted to work.

It would be quite inaccurate to paint an altogether gloomy picture of geographical research. Data have been scarce, it is true, but geographers have also suffered to some extent from unfamiliarity with the source materials that have been and are available in the libraries of this country and elsewhere. The publication by the Library of Congress in 1951 of a two-volume bibliography on the geography of the Soviet Union was an important step in the right direction. Periodic revision of the bibliography would be beneficial in view of the significant increase in the amount of material published in the Soviet Union and now available in the United States. The appearance within recent years of up-to-date, detailed atlases of the Soviet Union, as well as oblast maps showing raion subdivision, and the issuing once again of statistical handbooks augur well for future geographical research and writing.

Training and Access to Research Materials. Claiming first priority in any program aiming at the establishment of a more impressive place for geography in Russian studies is the basic need to train more students. Ideally, this should include a grounding in the discipline, familiarity with the culture of the area, and a workable knolwedge of the language. Above all, the goal must not be the training of "area specialists" per se, but rather of geographers capable of working competently in the Russian area.

Interest in the geography of the Soviet Union among American students might be stimulated to a greater degree than it is if more of the stronger departments of geography throughout the country were inclined to give more attention to the Soviet Union as a region by appointing to their staffs the available younger specialists, some of whom have been compelled to enter government service for want of suitable opportunity in the teaching profession. On the other hand, the major centers for Russian study should make every effort possible to expose their students to geography.

In addition to encouraging greater numbers of superior students to specialize in the Soviet area, there is also a real need to provide scholars with greater opportunities for research and study. Basically, this should involve affording them continuous access to major collections of Russian-language source materials. Such assistance unquestionably would contribute substantially to research and writing. Similarly, the geographer must also find time to benefit from the contributions of other disciplines engaged in research on the Soviet Union, as well as to keep abreast of the literature, new concepts and methods of the fields related to his geographic interests.

The number of geographers throughout the world who are writing on the Soviet Union, apart from those within the Soviet bloc itself, is small. Hence the establishment of close contacts among them would be mutually advantageous. American geographers could benefit from an exchange of ideas and information, as well as access to the materials of foreign geographers. In part this could be accomplished by assisting Americans to visit centers of research abroad and by enabling them to attend international geographical meetings. Not to be ignored is the need to stimulate contacts between American and Soviet geographers; such contacts might lead to opportunities for travel and research inside the Soviet Union, al-

though it is doubtful that extensive field study will become a real possibility in the near future.

Suggestions for Future Research. It is not the purpose of this review to indicate by imposing restrictions, what future geographical research on the Soviet Union should undertake to do. Rather it is intended that the suggestions should constitute a framework within which such research might be systematized. Every geographer will recognize the broad areas and basic problems that require examination, and each will follow the dictates of his own specific interests.

Geographical research in the past has been spotty and fragmental. Therefore, more broadly-conceived studies, both regional and topical in nature, are required if the contribution of the geographer to Russian area knowledge is to grow substantially. Particularly needed is the development of a conceptual frame of reference, or a philosophy of Soviet geographical change and growth, within which American geographers might work. The latter, in this connection, might do well to explore more fully, however unrewarding it may seem to be, the theories which Soviet geographers have advanced concerning their own work. Certainly the frequent and insistent attempts made to create rational, functional regions, whether administrative, economic, industrial management or agricultural, warrant closer scrutiny to assess both the existing stage of development as well as to gain some insight into the ultimate goal and patterns.

Systematic topical studies also hold great promise, not only in terms of the study of specific phenomena, but also as related to other phenomena and to the geographic whole. American geographers, as a rule, have tended to give more attention to the economic aspects of Soviet geography, for the most part ignoring the physical. Perhaps this is as it should be, since the work of Soviet physical geographers is in general first-rate, economic geography on the contrary, has been ignored and left somewhat undeveloped. American geographers might then direct their efforts to any number of economic topics and related problems. What, for example, are the relationships between location and resources which constantly need reevaluating in the light of new discoveries and changing technology, manpower, population, and industrial growth? What is the role and function of the city?--a subject which increasingly is attracting the attention of the Soviet geographer. Is there a hierarchy of places and how are these linked by expanding Soviet transportation facilities? Can Soviet agriculture meet the demands of a rapidly growing population, becoming increasingly urbanized? In what manner is the city affecting the utilization of the lands of the neighboring kolkhozes and sovkhozes?

Political and administrative geography represents a field much neglected by both Soviet and American geographers. Careful examination of pertinent geographic, political and economic materials and data may yield fruitful studies. How and to what extent does the Soviet political-administrative map reflect Soviet political, economic and geographic reality? What territorial functions do the subordinate administrative units command? How closely do the national territories reflect national groupings and how significant is the political-administrative boundary?

Soviet cartographic techniques, exemplified in the newer Soviet atlases, have made important progress within recent years, and open up a large and complex field of study which also demands attention.

If any of the foregoing suggestions have validity and are followed, there should be realized over the next five or ten years a greater volume and range of geographical writing in the United States on the Soviet Union. Indeed, the serious deficiences in the literature must be eliminated if geography is to play a significant role in any program of concentrated Russian studies, or if it is to indicate that it has a point of view and an approach capable of making a major contribution when brought full force to bear on the Soviet area. The challenge exists and there is much to be done.

MACROGEOGRAPHY AND THE CENSUS

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At present the United States Bureau of the Census has virtually completed the work on the schedule of questions to be asked in the 1960 Census of Population and Housing. Now begins the equally important task of deciding how the collected data shall be tabulated and eventually published.

It is generally recognized that the content of a census is clearly related to the immediate, practical, and demonstrably utilitarian applications to which the data are to be put by government agencies, businesses, and private citizens. In addition these data are used not only for classroom and teaching purposes but also as the empirical base for much of the inductive, and the empirical test for much of the deductive work, in the social sciences.

Thus, the Bureau of the Census is in the position of playing a decisive role in the development of social science in the United States even though it does not (and rightly so) enter into analysis as its primary function.

In general the Bureau of the Census has through the years kept abreast of the developing demands for new kinds of data. This, of course, is remarkable in view of the fact that the basic provision in the Constitution requires only that an enumeration of the population be made for the purpose of the apportionment of the Congress. (It might well be argued, however, that the over-all program of information gathering by the federal government has persisted too long in gathering a multitude of details about agriculture at the expense of other kinds of data in light of the vast changes in the nature of American society and its resources utilization through the years.) However, the value of the data collected rests in the last analysis upon how they are ultimately presented to the possible users, i.e., upon tabulation and publication.

There are two aspects to the geographic presentation of census data. One might be called "the microscopic;" the other, "the macroscopic." Let the microscopic be considered first.

Ever since the first census in 1790 certain microgeographic aspects of population have been more or less adequately handled. One of the goals of microgeography is complete spatial accounting. This involves knowing precisely the location for each instance of any kind of population of discrete units. Such an attainment is realized only for a limited class of phenomena, but even though the human beings in the United States are enumerated on such a basis, tabulation and portrayal by maps or tables of the location of each individual is of course entirely out of the question. But, the very reason for its being insures that the census shall yield an approximation of this complete microgeography. Even though precise locations of individuals have not been presented, the numbers within certain bounded areas have been.

Gradually population counts became available for a variety of kinds of areas including not only states, but also counties, minor civil divisions, territories, cities and towns, census tracts, blocks, regions, divisions, the approximately square degrees of latitude and longitude, urban areas, metropolitan districts, standard metropolitan areas, and others. In the planning for the 1960 census, the Bureau continues its concern for progress in the refinement of tabulation by area. The publication of summary characteristics for minor civil divisions, dropped in 1950, may be resumed. The difficulties in this program may be overcome by the creation of "census county divisions" (of a size comparable to minor civil divisions) in those states where the minor civil division boundaries are unknown or poorly defined or where there have been frequent boundary changes. Statistical areas of the census county division type were first delineated in the State of Washington before the 1950 census. In addition, there has been a modification in the definition of standard metropolitan areas. This will result in a slight increase in the number of standard metropolitan areas beyond that due to population growth and redistribution. Of course one of the costs of progress in tabulation by area is the loss of comparability, a problem partly overcome by retabulation of earlier censuses.

Certain other geographical considerations of populations have been employed by the Bureau through the years with 1874 being particularly important. At that time, under the direction of Francis A. Walker, the first Statistical Atlas of the United States was published. For the first time the Census Office (as it was then called) presented density of population maps. The population and area data from the ninth census in 1870 were used to portray density on large scale maps. Density of population maps at smaller scale were also prepared for each of the preceding eight censuses.

It is interesting to reflect upon the fact that from 1790 on, the information required for the computation of densities was available but was not so utilized until 1874. Although the first mention of the application of the purely physical concept of density to human populations and areas is probably lost in history, the first presentation of such maps seems to have been prepared for the English parliament by Lt. Henry Drury Harness in 1837 in conjunction with his membership on a commission appointed to consider and recommend a general system of railways for Ireland

(A. H. Robinson: "The 1837 Maps of Henry Drury Harness," Geographical Journal, Vol. 121, 1955, pp. 440-450).

Another noteworthy feature of the 1874 statistical atlas was the first official recognition by the Census Office of the macroscopic concept of "center of population." This center of gravity of population, using persons as unit masses distributed over a uniform plane, was based upon the purely physical concept employed two years earlier by J. E. Hilgard of the Coast and Geodetic Survey in his popular article, "The Advance of Population in the United States," Scribner's Monthly, Vol. 4, 1872, p. 214. In addition to showing the position of this center of gravity of the population for the ninth census, the Census Office presented this position for each previous decennial census.

The computation, presentation, and summary discussion of the alleged significance of this center have been features of every subsequent census. In addition, such centers for state populations were computed in 1910 not only for that year but for 1880, 1890, and 1900 as well. The 1920 state population centers were also computed, but scarcity of funds prevented such computations following the 1930 census and this series has never been resumed.

After the 1920 census, centers of gravity were computed for presentation in the 1924 statistical atlas for the following: foreign-born, native-white, Negro, urban population, rural population, number of farms, farm acreage, improved acreage, value of farm property, oats, cotton, corn, wheat, manufactured products, and wage earners. For most of these series, computations were extended back census by census to 1850. These, too, have not been continued since the 1924 atlas.

Another measure of "central tendency" of the United States population employed by the Bureau is the "median point." This point is the intersection of two orthogonal axes each of which divides the population in half. Conventionally a parallel of latitude and a meridian have been used. This selection is arbitrary as any other orthogonal pair might have been chosen. Since the location of the "median point" is dependent upon the arbitrary choice of axes and since its location is quite sensitive to certain small movements of population while remaining insensitive to certain other quite large movements, this center is of little use.

It was in the discussion of the relative merits of the center of gravity of population and the so-called median point that the Bureau unfortunately ascribed to the center of gravity a property which it does not possess. As late as the 1924 statistical atlas, page 7, the Bureau stated: "If all the people in the United States were to be assembled at once place, the center of population would be the point which they could reach with the minimum aggregate travel, assuming that they all traveled in direct lines from their residence to the meeting place." This error in identifying the center of gravity of population as necessarily coincident with the point of minimum aggregate travel distance was pointed out independently in the United States about 1930 by W. C. Eells and H. Bossert, Jr. and by C. Gini and L. Galvani in Italy.

In Russia, as early as 1906, the great chemist D. I. Mendeleev who in his later years turned his attention to demography and geography and analyzed the 1897 Russian census, cautioned in K poznaniyu Rossii that the center of gravity and the convergence center (minimum aggregate travel distance) need not be at the same point. It is also interesting to note that Mendeleev's son, then a university student in mathematics, charged with the task of computing the center of gravity of the Russian population for 1897, employed formulas recognizing a spherical surface for the earth. It is doubtful that the precision gained justified the effort.

Computations of various centers have progressed outside the Bureau of the Census. In the United States especially during the 1930's Walter C. Eells, while at Stanford University, was particularly active. Others in the United States include D. E. Scates, J. F. Hayford, and F. L. Griffin. In other countries as well, notably the U.S.S.R., Italy, Sweden, Belgium, Japan, Germany, Poland, Canada, and India, there was considerable activity during the 1930's. Walter C. Eells, in calling attention to the Bureau of the Census error mentioned above, seems to have aroused considerable interest outside the Bureau.

It is important to note that the flurry of activity in the 1930's produced refinements of definition and computational methods but virtually no important new applications, concepts, or principles; the computations were given no new usefulness other than that for which defined - an all too common characteristic of geographical classifications.

Recently, however, Stewart and Warntz, in the work cited below, have employed the "dynamical radius" based on the center of gravity of population as a measure of the spatial expansion of population through time.

From 1940 to the present, John Q. Stewart of Princeton University has investigated a more fruitful measure of population distribution which, because of its analogy to gravitational, electrostatic, and magnetic potentials, Stewart has called "potential of population." This measure has been demonstrated to be of far reaching importance in research in social science. Potential is a macroscopic field quantity. It is a spatially continuous variable created from the discrete microscopic distribution of a population of individuals and can be portrayed on a map using a contour technique. Potential is a measure of propinquity. Each individual contributes to the total potential in any place by an amount equal to the reciprocal of his distance away. The contours are in units of "persons per unit distance."

Potential of population has been employed successfully by Stewart and Warntz in the analysis of the geographical variation of many sociological phenomena including rural population density, rural nonfarm population density, rural nonfarm rents, farm land values, railroad track densities, rural free delivery route densities, manufacturing wage earner densities, death rates, income densities, telephone wire densities, road densities, location of Federal Reserve cities, location of wholesaling cities, location of administrative centers, size of area of counties, states, Federal Reserve districts, and marketing territories, automobile registrations, automobile fatalities, incidence of taxation, patents, and business failure

rates. (John Q. Stewart and William Warntz, "Macrogeography and Social Science," Geographical Review, Vol. 48, 1958, pp. 167-184.) Warntz has also applied the concept to price theory and the measurement of spatial association.

Many researchers and scholars in the social sciences have found potential of population an important concept, and especially in the last three years social scientists in increasing numbers are employing the concept. Serious limitations are now being experienced, however, because of the "coarse grainedness" of existing maps of potential of population. Production of a map utilizing, for example, each county as a control point for contouring is an accomplishment that is too laborious and expensive for an individual researcher to achieve. This, then, brings us to the main point of this note.

It is hereby submitted that it would be entirely appropriate for the Bureau of the Census to compute and publish a detailed Map of Population Potential in the United States as part of the tabulation program for the 1960 census and for each succeeding one. (It is desirable, but rather too much to hope, that such a map be done for each preceding census.) The Bureau would thereby not only facilitate existing research and application but would also promote future research in social science generally. By federal standards the cost would be very low and the Bureau would be in a position to spread overhead in a way that the private individual cannot.

Admittedly potential of population is a physical concept, but so, too, are density and center of gravity. In and of itself potential of population, like density and center of gravity, represents a synthesis and not an analysis. This, too, is in keeping with the Bureau's policy.

The preparation of such a map would help the Bureau maintain its enviable position of regularly providing census users with the kinds and tabulations of data required. That the Bureau's microgeographic program of areal subdivision tabulation has been adequate is forcefully demonstrated in the Changing Population of the United States (1958) by Conrad Taeuber and Irene B. Taeuber. Here dot and density maps have been employed to illustrate growth and geographic expansion of population.

It is hoped that the microgeographic tabulation program that has made such an important work as the Taeubers' possible will continue to show the progress that has characterized it through the years. It is equally hoped that the Bureau of the Census will also find it within its means and wishes to provide macrogeographic tabulation (especially of a detailed potential of population map) to facilitate and encourage the development of the macrogeographic aspects of social science.

THE OBLIQUE PLANE AIR BOUNDARY

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A recent study concludes that "Human progress and natural changes are continuously at work to change the functions of boundaries and their value for the bounded areas." (Principles of Political Geography, Hans Weigert et al., Appleton-Century-Crofts, New York, 1957, p. 141.) No better example of this can be cited than the changes in functions and values of international air boundaries.

Owing to the implications derived from man's increasing ability to reach toward outer space, legal and aeronautical specialists have begun to deal with the problem of affixing upper horizontal limits to air space boundaries. But few seem to be concerned with the vertical extensions of air boundaries.

Aerial activities during World War I awakened an interest in the legal status of the air because of the threat to national security that was inherent in widely expressed concepts supporting freedom of the air. National states began to affirm their sovereign rights to air space over their territories and territorial waters, and the Major Powers organized a Convention on Air Navigation at Paris in 1919 to gain international consensus for such sovereignty. Article 1 of this Convention recognized: (1) the principle of the full and absolute sovereignty of each State over the air above its territories and territorial waters, carrying with it the right of exclusion of foreign aircraft; and (2) the right of each State to impose its jurisdiction over the air above its territory and territorial waters.

This principle was reaffirmed at the Chicago Convention of 1944. National sovereignty over the air was strengthened by Article 9 of this Convention, which permitted uniform restriction or prohibition of foreign flights over national territory for reasons of military necessity or public safety. Legal recognition was thereby given to an already widely adhered to practice of prescribing routes and security zones, and of controlling landing grounds as a means of whittling away obligations to allow innocent passage of foreign aircraft.

While there is international agreement on sovereignty over territorial air, there is, as yet, no formal agreement on how far up this sovereignty extends. One of the foremost authorities on international air boundaries, John C. Cooper, has suggested that air sovereignty extends at least as far above the surface as to include a region which can roughly be defined as airspace. Airspace includes the 'troposphere' and 'stratosphere,' i.e., the air belts which extend 60 miles upward, and in which flight and lift control is obtained by airfoil passage through space.

Francis C. Gideon suggests that international law should recognize that the atmosphere, for purposes of flight control, has two belts. The first, as follows from the previous paragraph, might be called "territorial space." The second, the "ionosphere," from 60 to 120 miles upward is a belt where gravitational control still exists, despite the absence of flight and lift control.

In brief, the fixing of the upper air boundary on a horizontal plane is in a process of change, in response to the advances of aeronautical science. But, what of the vertical plane boundary, i.e., the boundary that projects upwards from the defined land or sea boundary?

Most sources appear to accept, in full, the principle that the air boundary extends directly upwards from the surface. The geographer, A. E. Moodie, expresses it thus in The Changing World (World Book Co., Yonkers, N.Y., 1956, p. 948): "On land, the boundary is a line. But in legal theory, the boundary extends upward and downward, creating a vertical plane." The previously mentioned international legal authority, John C. Cooper, states: "If you define the sovereignty of the status, the air over the status is territorial air."

One might raise serious objections to the uncritical acceptance of the vertical plane boundary principle, because the values of an air boundary differ from those of surface boundaries. A surface boundary is either naturally-marked or man-marked. But, regardless of which, such a boundary can be given a barrier function that can check international movement and observation. Ridges, fences, forests, or patrol vessels can prevent threats, by observation, to national security. An aircraft or balloon, however, can ascent to heights well outside the vertical plane boundary and still threaten national security.

International law affords certain precedents for suggesting that territorial air, in a boundary sense, cannot be treated in exactly the same fashion as territorial land or seas. For example, international air law states that no aircraft may fly into airspace over territorial waters without the specific permission of the adjacent State. International maritime law, however, allows foreign surface ships to exercise certain rights of passage in territorial waters and into open ports without the specific agreement of the adjacent sovereign State.

Also, it is recognized that, during war, the height to which aircarft can ascend enables them to be used for observation purposes from neutral territory. To guard against such a possibility, Article 47 of the Hague Conference on the Revision of the Rules of Warfare stated: "A Neutral State is bound to take such steps as the means at its disposal to prevent within its jurisdiction aerial observation of the movements, operations, or defenses of one belligerent with the intention of informing the other belligerent."

In times of war, belligerents and neutrals have adopted measures, such as "War Zones" and "Security Zones," that have ignored the freedom of States to use international seas and skies. Thus the rights of neutrals were effectively curtailed by the British blockades of the First and Second World Wars, and the American States established a 1,000-mile Security Zone off the coasts of the Americas through the 1939 Declaration of Panama.

In times of peace, unilateral or multilateral decrees with respect to international seas and skies rarely succeed in winning universal acceptance. With respect to vertical air boundaries, the practice has been for National States to hew rigorously to them and to proclaim their inviola-

bility. But, how can one expect a vertical line to serve as a clearly defined barrier to "faster than sound" aircraft operating in their vicinity? And unless a State arbitrarily pushes its vertical boundary away from its coasts, can it prevent foreign aircraft from placing its territories under observation, even though those aircraft fly outside territorial skies? By accident or design, planes operating close to air boundaries can either breach them or observe "through" them. The "incidents" in Central Europe, the Adriatic, the Baltic, and the North Pacific, in which American aircraft have been shot down while as far as 20 to 30 miles from the boundaries can be less easily avoided in this "Cold War" epoch. Those who call for strict adherence to vertical boundaries, be it by aircraft, or weather or observational balloon, ignore the ineffectiveness of these boundaries to prevent violations of sovereignty through observation from the outside.

In recognition of some of these difficulties, there have been calls for strict international control of commercial and military aircraft within the approaches to the United States and those of participating nations on a reciprocal basis. But arbitrary extensions of vertical plane boundaries over high seas in times of war do not offer guidance for a code of peacetime conduct, and can never be extended over land boundaries save at the expense of another State's airspace.

A possible solution to the problem might be the substitution of the oblique plane for the vertical plane boundary. By such a system, the internationally accepted surface boundary would not be tampered with. The oblique line would satisfy more fully security needs of National States, for foreign planes flying at very high altitudes--whether their mission be photography or innocent passage--would meet the boundary much farther away from the surface boundary than would low-flying craft (cf. Figure 1). The angle to be used would reflect the security needs of the sovereign State directly concerned, and the views of the international body of nations.

Whereas the vertical plane is a geometrical or "artificial" boundary that cannot take altitudinal differences into consideration, the oblique plane is an artifical boundary that tries to make an adjustment to technological changes, especially those in the field of photo reconnaissance and aircraft speed. When mapped, the oblique boundary would appear as a series of isopleths, representing various altitudes.

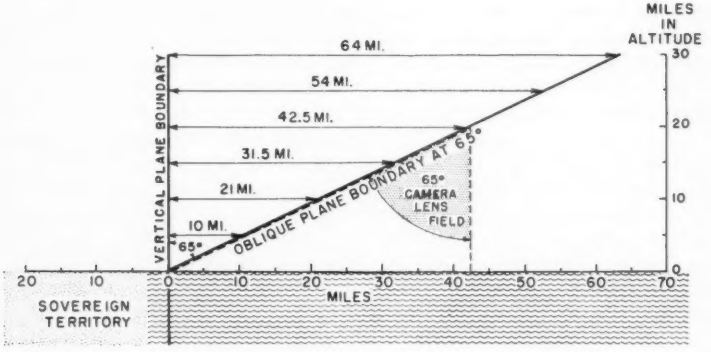
The least complicated use of the oblique plane boundary can be made with respect to the air over territorial seas. Where air boundaries are extensions of maritime boundaries, wider angles appear to be desirable. One method of projecting such angles might be to extend into the air a line drawn from the earth's surface at an angle of 23.5°, in accordance with the inclination of the earth's axis (cf. Figure 1-B). Note how different the effect of this boundary would be as compared to a 65°-angle boundary (cf. Figure 1-A).

Determining the oblique angle for narrow seas would be more complicated. For example, the width of international waters in the Eastern Mediterranean is 200 miles. Narrow oblique angles projecting from the boundaries of Greece and Libya would be necessary, both to retain an international air corridor and to prevent an overlap of the two boundaries

at medium altitudes. The angle to be used would reflect the security needs of two sovereign States, as well as the views of the international body of nations. Where such boundaries did meet and overlap in outer space, they would tend to reinforce the mounting calls for internationalizing outer space.

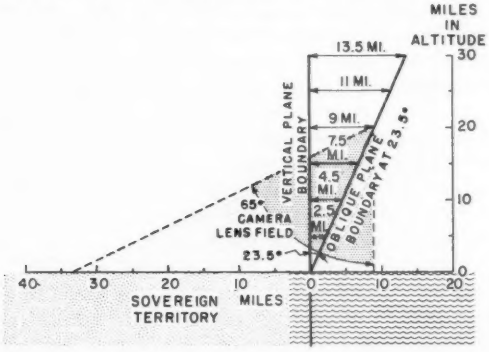
In a totally separate category is the oblique plane for air boundaries over land. Indeed, the use of this principle over land areas would create a boundary zone, not a line, for each state, in looking forward, would project its air boundary over foreign territory (cf. Figure 2). The zone of overlap thus created would have to be as narrow as possible, if at all feasible, and might be based upon the relationship between altitude and

THE OBLIQUE PLANE BOUNDARY OVER SEA AT 65°



(a)

THE OBLIQUE PLANE BOUNDARY OVER SEA AT 23.5°



(b)

Figure 1

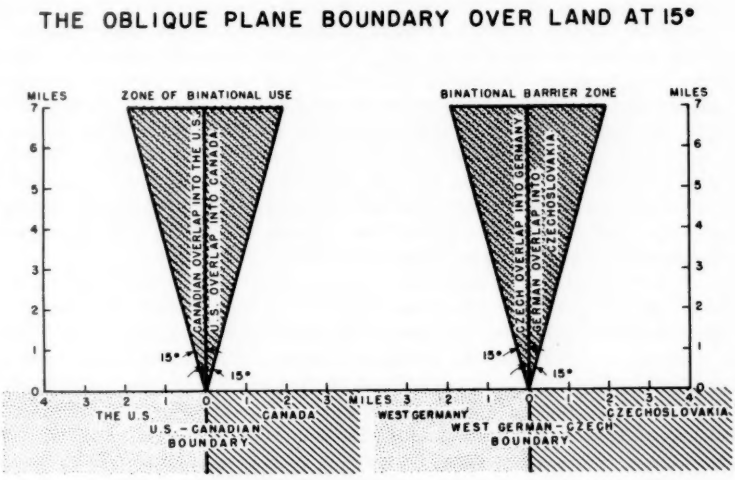


Figure 2

aerial photography techniques. Such a zone could only be established through bilateral agreement, differing thus in function as well as in value from the oblique plane over seas. The zone of overlap might be jointly used (as would probably be the case for close allies like the United States and Canada), or it might serve as a mutually acceptable barrier (as more feasible for the West German-Czechoslovakian border area).

This paper does not attempt to analyze in detail the problems inherent in deciding upon the angles of the various oblique planes. Indeed, it recognizes that the only practical use of the oblique plane may be with respect to air boundaries over territorial seas. In some instances, this may be applied to underwater boundaries. For example, it could be applied to non-American submarines operating just outside the 3 mile limit, so that the deeper the submarine (and the more difficult to defend against), the farther off-shore would be the boundary and the line of challenge. It is in this context that the principle of the oblique plane air boundary is therefore presented.

A COEFFICIENT OF INTERCULTIVATION

Bryan H. Farrell
University of Auckland, New Zealand

In many tropical areas where subsistence agriculture or a mixture of subsistence and commercial agriculture is practised, a varying percentage of the total agricultural area is intercultivated, sometimes with up to half a dozen crops. Often there is little consistency. In the one agricultural area there may be plots with two crops or three crops in various

combinations and other plots where only one crop is grown. A situation such as this exists in Western Samoa, where a land use survey has recently been concluded by members of the Department of Geography, University of Auckland. By means of field mapping and later by using a planimeter it was possible to compute (a) the land area occupied by Samoan village communities, (b) the total areas in crops and (c) the area in individual crop combinations. In order to analyse better the Samoan agricultural scene it was essential to know not only the total acreage intercultivated but the degree of intercultivation as it varied from village to village and from Upolu to Savai'i. For this purpose a coefficient of intercultivation, C.I., was devised.

The main crops covering the greatest area in Western Samoa are coconuts (Co), cacao (Ca), and bananas (Ba). At Taga, a village in Savai'i, the acreage in various crops and crop combinations is as follows: Co, 214 acres; Ca, 39 acres; Ba, 17 acres; BaCoCa, 73 acres; BaCa, 57 acres; and CoCa, 26 acres, making a total of 427 acres in crops. If, for example, all cropland at Taga were planted to the three crops, intercultivation would be at a maximum, at which point the C.I. would be 100 or 100 per cent. On the other hand, if the 427 acres were planted in coconuts only, the degree of intercultivation would be nil and the C.I. = 0.

In order to find the actual C.I. for Taga only crop combinations are considered. Acreages with three crops are multiplied by two and added to the other combinations. The total is divided by the total crop area multiplied by the number of crops minus one, in this case two. The quotient is multiplied by 100 to give the C.I. $\frac{2(73) + 57 + 26}{427 \times (3-1)} \times \frac{100}{1} = 27$

The formula is:

$$C.I. = 100 \left[\frac{x2 + 2(x3) + 3(x4) \text{ etc.}}{Y (N - 1)} \right]$$

Where: x_2 is a combination of 2 crops
x_3 is a combination of 3 crops
x_4 is a combination of 4 crops
Y is total cropland area and
N is number of individual crops

An alternative method is to use the total area of each individual crop found singly and in all its combinations and compute this figure as a 'percentage' of the total crop area. Do this for all individual crops. In Taga this is: Co, 313 acres (73%); Ca, 195 acres (46%); Ba, 147 acres (35%). Then use the following formula:

$$C.I. = \frac{S(x) - 100}{N - 1}$$ where S(x) = sum of the "percentages"
N = number of individual crops.

$$C.I. = \frac{73 + 46 + 35 - 100}{2} = 27$$

To compare the degree of intercultivation in various villages or between areas the value of N must remain constant. In the survey of Western Samoa taro was not included. Although it is a very important food crop, in terms of area at any one time it is unimportant. Only the major crops occupying significantly large areas were found practicable to use.

ASSOCIATION AFFAIRS

Summaries of Informal Panel Discussions at 1958 Annual Meetings, Santa Monica

Geography and Television. Richard S. Thoman, presiding. Panelists: Richard Houk, David Jennings, George Kish, Harold M. Mayer, and Jewell Phelps (whose comments were read by Robert T. Ramsaur).

The panel conducted an exploratory inquiry concerning (1) the use of television in presenting geographical materials within the United States and Canada, and (2) the possible interest on the part of the Association of American Geographers in such use. From a sample survey previously conducted by the moderator, it was disclosed that each of approximately one-fifth of all colleges and universities listed in the Schwendeman Directory has been responsible for at least four consecutive, regularly-scheduled geographical telecasts between 1953 and 1958, and thus has shown an interest in the medium. The panelists, who represented institutions of varied size and administrative structure and who are from different sections of the United States, related the pertinent circumstances associated with their own experiences in the use of television. Their statements and the ensuing discussion emphasized: (1) the need for competent presentation to adult audiences; (2) the techniques of such presentation; (3) the ratio of rewards, monetary and otherwise, to effort; (4) the type and extent of local and national reception, and (5) the inadvisability of trying to substitute televised lecturing for classroom discussion. It was stated that possible AAG interest in such presentations could be shown by setting up a committee to coordinate available geographic materials and by maintaining a list of geographers experienced in television work. The question was raised concerning the extent to which the AAG, a research organization, should become interested in such matters of application as this one.

(Summary by Richard S. Thoman)

Field Training for Geographers. George Kish, presiding. Panelists: Charles M. Davis, Keith Decker, and Richard F. Logan.

The round table discussion was introduced by George Kish, with a brief review of the methods used in field training in the Soviet Union, specifically emphasizing the extent of field training, at all levels of undergraduate and graduate work. Keith M. Decker presented a statement on aims and methods of field training in a general geography course for undergraduates. Richard F. Logan discussed principles of field training for graduate students, emphasizing the need for analysis and synthesis of phenomena in the field, techniques of fractional notation, and the importance of "geographical dialectics". Charles M. Davis put the emphasis

in his statement on a threefold approach to the problem of field training: preliminary reconnaissance, institutional training in fundamentals of field observation, and a sound program in the presentation of data gathered in the field.

In the course of the general discussion of these statements, Professor Bogodar Winid, of the Institute of Geography of the Polish Academy of Sciences (Warsaw), gave an interesting glimpse of the aims and accomplishments of field training in present-day Polish geography.

(Summary by George Kish)

Heat Balance Concept in Physical Geography. David H. Miller, presiding. Panelists: David I. Blumenstock and Arnold Court.

Ways in which the heat-balance concept gives geographers means of being specific about broad ideas, such as continentality, that usually are stated only in generalized terms were presented. The two principal aspects of physical geography -- landscape and climate -- are connected by the heat budget, as Blumenstock showed in describing a study of atoll climate. Court spoke of the change of heat budget through the zero point as a critical feature of climate deserving more research. Discussion by members of the audience of 20 to 25 persons helped bring out ways in which the heat-balance approach finds use in studies of evapotranspiration and vegetation zones, and in research on world patterns and micro-distributions alike.

(Summary by David H. Miller)

Economic Development. Norton Ginsburg, presiding. Panelists: Richard Hartshorne, Frank Keller, Edward Ullman, and Gilbert White.

The panelists were joined by the authors of papers read at the session on Geographic Aspects of Economic Development, Philip Wagner, Wilbur Zelinsky, Allan Rodgers, Peter Gosling, and Ann Larimore. The focus of the discussion centered about the papers presented at the earlier session, and the panelists addressed their comments, initially at least, to these papers. Emphasis tended to be on the role of geographers in dealing with underdeveloped areas and problems of economic development. Remedial measures for raising income levels were discussed only briefly.

Among the important points raised and discussed in the panel were:

1. The need for acquiring new frames of reference in dealing with regional economic geography. Serious attention was given to the possibility of an economic geography based on types of consumption rather than of production.

2. The problem of studying population growth in low income countries and the relevance of neo-Malthusianism in population geography.

3. Problems of measuring industrial growth in areas where data are limited in quantity and low in quality, and of examining the regional impact of localized industrialization on other portions of a country.

4. The need for cultural perspective in dealing with low income countries.

5. The possibility of developing field-oriented geographical surveys of settlement, by which typologies of or indices to stages of economic development can be devised for areas where quantitative data are few and unreliable.

(Summary by Norton Ginsburg)

Cartography. Allen K. Philbrick, presiding. Panelists: Wallace W. Atwood, Paul A. Siple, and Dieter H. Brunnschweiler.

The presentation at the Cartography session was an informal discussion of the impact of the events of the International Geophysical Year upon geography in general and cartography in particular. The discussion centered on the possible impact of the significant break-throughs in knowledge associated with the IGY upon both the subject matter and the technology of geography. Dr. Siple continued his discussion of the morning session concerning new and revised understanding of Antarctica. Dr. Atwood outlined the organizational impact of IGY in the field of international cooperation for research. Dr. Brunnschweiller emphasized the importance to teaching of the information available from the research of the International Geophysical Year. There was considerable discussion from the floor, and the impact of our entry into the "space-age" as evidenced by the Russian and American space satellite programs was briefly touched upon. The meeting closed upon the idea that perhaps one of the most hopeful signs in a world beset by international tensions has been the cooperative effort of scientists in IGY and the decisions to continue such investigations into the future.

(Summary by Allen K. Philbrick)

Political Geography. Huey Louis Kostanick, presiding. Panelists: Richard Hartshorne, Preston E. James, Henry S. Sterling, and Benjamin E. Thomas.

The session had as its special aim exploration and discussion of a particular topic in political geography--the areal extent of effective political organization within a state. Many distinctions have been made in regard to differences in status of major political units, such as the general division in international law into sovereign "states" and dependent units, such as "colonies" and "protectorates." Yet within an individual political unit there may be just as broad internal differences in political organization and in effective national control.

The members of the panel presented a variety of views and analyses of general concepts of internal political differences and of possible techniques of delimiting specific areas of effective national control. High density of population was suggested as a possible index of effective political organization, as in the case of Canada where the population is concentrated along the southern borders. Brazil, too, was cited as an example of great variations in political organization, ranging from a "core area" or "ecumene" on the eastern coast to purely "colonial" areas of the interior where there is little or no evidence of governmental authority. South and Central America were also used to illustrate important distinctions in

legal forms of land ownership. Africa served as an illustration of rapidly changing forms of political organization, particularly British East Africa where resettlement of natives is producing new patterns of land ownership and political relations to the government. Other cases cited were the Netherlands, an example of rather effective control of the entire state area and, as a strong contrast, Beirut, Lebanon, where recently part of the city was under military control of rebel forces although many of the normal functions of government, such as mail and police service, were still being carried on.

Comment from the audience was to the effect that such discussion on a specific topic in a discipline was a useful method of stimulating thought and individual investigation. As part of audience participation, Yugoslavia and Viet Nam were analyzed as examples of complex internal organization.

(Summary by Huey Louis Kostanick)

Geomorphology: Mass Wasting. Clark N. Crain, presiding. Panelists: Richard J. Russell, John T. McGill, William D. Thornbury, and William E. Powers.

Three widely separated world areas where mass wasting is significant in the development of the present landscape were described by Dr. Russell. The example areas were: east side of Novaya Zemlya in latitude 75° N., near Rio de Janeiro in latitude 23° S., and in northwest Louisiana in latitude 32° N. Mass wasting was shown to occur at high and low levels, and in arctic, subtropical and tropical latitudes. An interpretation of climatic change should not be applied to subsurface structures until the possible effects of mass wasting have been considered.

Dr. McGill explained the recent disastrous landslides along the Pacific Palisades coast north of Santa Monica, California. The geology and faulting of the area were described. Types of mass movements have included soil and rock falls, rotational slumps, planar slides, earth flow, mudflow, and soil creep. Several factors combine to promote mass movements in the area. Slopes are generally steep, ground water is concentrated in the winter season, rock and earth materials are weak, and road cuts and other excavations have oversteepened slopes. Some remedial measures were described.

Dr. Thornbury showed how mass wasting has been neglected in past explanations of the development of landforms, and explained the role of mass wasting in polar regional geomorphology, microgeomorphology, submarine geomorphology, relic forms in areas no longer subject to mass wasting processes, and climatic geomorphology. At least six climatic factors influence the types and rate of mass movements in regolith.

Dr. Powers discussed the differences between large ice-wedge polygonboden and the smaller scale debris-sorted pattern ground. Past descriptions of soil structures due to mass movements under arctic conditions have generally failed to bring out the differences between these two types of pattern ground with respect to form, scale, subsurface structure, and origin.

Following the papers, there was a lively exchange of views between panelists and members of the large audience during which a number of examples of mass wasting, such as stone lines and stone rings, were discussed.

(Condensed from a Summary by William E. Powers)

Pleistocene Climate in the Great Basin and the Southwest. Campbell W. Pennington, presiding. Panelists: Theodore Downs, Vasil Gvosdetsky, Dan Jones, and Homer Aschmann.

The symposium focused on three aspects of evidence pertaining to Pleistocene climate of the Great Basin and the American Southwest, namely: (1) fossil and living soils in the Bonneville basin, (2) fossil and modern rock flows in the Bonneville basin, and (3) Pleistocene vertebrate faunas of California, Arizona, and Idaho.

Gvosdetsky commented on pre-Pleistocene, Pleistocene and post-Pleistocene fossil and living soils along the western margin of the Wasatch. He noted that their physical and chemical characteristics, as well as stratigraphic position, suggest minor fluctuations of climate in the area, but always within limits of an sub-humid to an semi-arid climate.

Jones pointed out that Pleistocene mud rock flows, consisting of numerous layers of unsorted bouldery gravels, intercalated with beach and shore gravels, have been identified in each of the three principal Pleistocene formations in Lake Bonneville. These mud rock flows are remarkably like those which have occurred recently along the western front of the Wasatch. Jones suggested that although mud rock flow deposits may form in mountainous terrain of humid climates, most such flows occur today in semi-arid to arid climates. Therefore, it would appear that the climate of the Pleistocene in the Jordan Valley of Utah was not unlike the semi-arid climate of today.

In commenting on vertebrate faunas and climate of the Pleistocene in the Southwest, Downs cautiously noted that a mere comparison of modern and fossil faunas does not necessarily indicate specific climatic conditions of the past. Moreover, known faunas have not been precisely correlated with glacial and inter-glacial phases. Inferences, however, may be drawn as to past climates. Early Pleistocene faunas in such sites as Hagerman in southern Idaho, the Vallecito-Borrego sites of southern California, and in the Coso Mountain region, suggest relatively moister and cooler conditions than obtain today. However, an early Pleistocene assemblage in San Pedro Valley of southeastern Arizona justifies no notion of a different climate than is now characteristic of southeastern Arizona. Middle Pleistocene deposits at Manix Lake suggest cooler conditions and perhaps more moisture than is common today. Current study of Schuiling cave deposits in the Mojave desert suggest that more humid conditions might have prevailed. Evidence concerning the La Brea deposits is conflicting, but it seems certain that at least during some portion of late Pleistocene time conditions at the La Brea site were somewhat more moist than today. The Carpinteria deposits of southern California and the San Joaquin Valley McKittrick deposits indicate more humid conditions than

exist in these areas at present.

The floor discussion, in response to Aschmann's summary, pointed out that radio-carbon dating might be of value in establishing age of the several faunas not yet dated. It was recognized, however, that radio-carbon could not be useful except for dating deposits of Wisconsin time.

(Summary by Campbell W. Pennington)

Is This Correct?

The AAG Central Office is anxious to have a complete and accurate list of universities which grant the Ph.D. in Geography. If any of the following do not grant the degree, or if there are additions to this list, please notify the AAG Secretary, Map Division, Library of Congress, Washington 25, D. C.

Boston U., Boston
California at Berkeley
California at Los Angeles
Chicago, Chicago
Clark, Worcester
Columbia, N.Y.
Denver, Denver
Florida, Gainesville
Johns Hopkins, Baltimore
Indiana, Bloomington
Iowa State, Iowa City
Kansas, Lawrence
Louisiana State, Baton Rouge
Maryland, College Park
McGill, Montreal
Michigan, Ann Arbor
Michigan State, E. Lansing
Minnesota, Minneapolis
Northwestern, Evanston
Nebraska, Lincoln
New School for Social Research, N.Y.
North Carolina, Chapel Hill
Ohio State, Columbus
Oregon State, Corvallis
Pennsylvania, Philadelphia
Pennsylvania State, University Park
Pittsburgh, Pittsburgh
Stanford, Stanford
Syracuse, Syracuse
Washington, Seattle
Wisconsin, Madison
Yale, New Haven

Abstracts for Pittsburgh Meetings Due December 1

Abstracts of papers to be presented at the AAG Annual Meeting in Pittsburgh must be received no later than December 1 by E. Willard Miller, Department of Geography, The Pennsylvania State University, University Park, Pennsylvania. For complete details see the September issue of The Professional Geographer, page 40.

AAG Research Grants

Because available funds for research grants were not used last year, the Council approved on August 20, 1958 a recommendation that $2,000 be budgeted for research grants in 1959 and that the Research Grants Committee be permitted to recommend up to $1,000 for single grants from either the Atwood Research Fund (for research in physical geography) or the General Research Fund (for research in any field of geography).

Requests for research grants should include full explanation of the objective sought, the methods to be used, specific budgeting of expenses to the extent possible, and the timing of the project. The requests should be submitted in triplicate to

---Professor Loyal Durand, Jr.
Chairman, AAG Research Grants Committee
Department of Geology and Geography
University of Tennessee
Knoxville, Tennessee

AAAS Geology and Geography Meeting

The American Association for the Advancement of Science will hold its 125th meeting in Washington, D.C. from 26 to 31 December 1958. Participation in Section E, Geology and Geography, by the Middle Atlantic Division of AAG will serve as the Division's annual meeting. Contributed papers in both geology and geography will be given 2-4 p.m. on 26 December in the Caribar Room, Sheraton-Park Hotel. In addition the following program has been arranged by the Middle Atlantic Division, which will be held in the Hall of Nations, Hotel Washington.

10 a.m. - December 29 --- Symposium: Geographic Research-Broadening Horizons - Arranged by Jackson E. Guernsey & G. Etzel Pearcy. Burton Adkinson, presiding.

Speakers:

Louis O. Quam, Geography Branch, Office of Naval Research
Norton S. Ginsburg, Dept. of Geography, Univ. of Chicago
Edward A. Allsworth, Program Assistant in Foreign Area & International Relationship Training Fellowship Programs, Ford Foundation.

2 p.m. - December 29 --- Symposium: The St. Lawrence Seaway.
Arranged by J. Warren Nystrom. George J. Haering, presiding
"The Eighth Sea"
Documentary Film on the St. Lawrence Seaway
Speakers:
George J. Haering, Former Assistant to the Administrator, St. Lawrence Seaway Development Corporation
Richard S. Thoman, Dept. of Geography, Northwestern Univ.
N. R. Danielian, President, Great Lakes-St. Lawrence Association.

A business meeting of the Middle Atlantic Division will follow this session.

AAG 1959 Pittsburgh Meeting

The 55th AAG annual meeting will be held in Pittsburgh on March 29 to April 2, 1959. The Hotel Penn-Sheraton is the headquarters hotel, located in the heart of the Pittsburgh business district and convenient to parking facilities, railroad and bus terminals.

The preliminary program includes an industrial valleys field trip (Monongahela and Allegheny valleys) with emphasis on industrial location and transportation facilities, on the afternoon of Sunday, March 29; an urban renewal field trip on the morning of Thursday, April 2; and a reconnaissance field trip by air across the Appalachian Plateau and Allegheny Front, with view of the folded Appalachians, and with attention directed to both cultural and physical features as revealed from the air. The air trip is tentatively scheduled for the morning of Monday, March 30, and registration must necessarily be limited. The field trips programs is under the direction of Carole C. Bradley and Gerard J. Foster, with the air trip directed by Major Ralph F. Jackson, U.S.A.F. Advance registration forms for field trips will be sent to AAG members.

Registration for the annual meeting will begin on Sunday, March 29, and will continue throughout the meeting. The annual banquet will be held on the evening of Wednesday, April 1.

The Visual Aids Committee, under the direction of Leonard I. Kuntz, will provide projectionists and projectors for 2" x 2" (35 mm) slides and 3" x 4" slides, and will provide electric signaling devices for slide changes, flashlight pointers, stick pointers, easels, blackboards, and cellotex boards. Each meeting room will have an illuminated lecturn and sound equipment. All program participants are requested to indicate their specific visual aid needs on a questionnaire that will soon be mailed to them.

If you plan to hold a special breakfast, luncheon, dinner, or party at the meeting and would like it included on the printed program, please inform the Local Arrangements Committee immediately. Indicate first, second, and third choices of time.

James M. Jennings, chairman of Hospitality and Information presents the following information:

HOTEL ACCOMMODATIONS

Headquarters hotel: Penn-Sheraton Hotel

Single bed, one person	$ 8.50 to $12.50
Double bed, two persons	12.50 to 15.50
Twin beds, two persons	13.50 to 20.00
Parlor and twin bedroom	27.00 to 37.00

Other nearby hotels:

Pick-Roosevelt Hotel
(4 blocks from Hdqtrs Hotel)

Single	$ 5.00 (few); $6.25 to $10.25
Double	10.00 to $13.00
Twins	12.50 to 13.50

Sherwyn Hotel
(3½ blocks from Hdqtrs Hotel)

Single	$ 6.25 to $10.50
Double	9.00 to 13.00
Twins	11.75 to 14.00
Suites (twin beds)	$17.00 to $30.00

Carlton House
(across street from Hdqtrs Hotel)

Bedrooms, Single	$12.00 to $16.00
Studios, Single	14.00 to 16.00
Bedrooms, Double	15.00 to 18.00
Studios, Double	18.00
Suites from $35.00	

Pittsburgher Hotel
(2 blocks from Hdqtrs Hotel)

Single	$ 7.00 to $ 8.25
Double	8.00 to 10.25
Twins	11.50 to 12.50
Triples	14.25

Webster Hall Hotel
(3 miles from Hdqtrs. near the University of Pittsburgh)

Single, running water	$4.75, $5.00
Single, shower	$8.00
Single, tub shower	$11.00
Double, shower	$11.00
Double, tub shower	$13.00
Suites	$20.00 and up

YMCA
(3½ blocks from Hdqtrs Hotel)

Single	$3.61
Twins	3.09

TRANSPORTATION *(Round trip, including tax)*

FROM	AIRLINES		RAILROADS		BUS
	COACH	FIRST CLASS	COACH	FIRST CLASS	
New York	$ 38.83	$ 49.17	$ 33.44	$ 52.75	$ 22.77
Chicago	47.96	61.38	35.09	56.16	26.24
Minneapolis	92.51	101.64	57.31	87.28	42.41
Denver	144.10	185.57	91.57	135.30	71.50
Seattle	224.07	308.66	134.58	195.63	116.27
Los Angeles	221.87	304.81	144.33	209.55	116.27
Dallas	139.48	162.25	81.84	125.34	55.55
St. Louis	64.02	80.96	45.70	73.37	33.00
New Orleans	126.06	137.17	76.28	108.95	57.15
Miami *Night flight	99.00*	149.05	92.34	143.87	63.77
**Day flight	110.66**				

---Norman Carls, Chairman, AAG Local Arrangements Committee
Geography Dept., 1309 C.L., University of Pittsburgh
Pittsburgh 13, Pennsylvania

ANNOUNCEMENTS AND REPORTS

Geography Fellowships at Rutgers

In the year 1959-60 a new fellowship program is being initiated at Rutgers University. The Eagleton Foundation, Rutgers-The State University, with the cooperation of the Graduate School, will make available ten fellowships for study in the social sciences at $1,800 each, plus free tuition and fees. Students eligible to apply are seniors who are expecting their Bachelor's degree at the end of the academic year and who wish to pursue one of the following plans at the graduate level:

1. A student who has majored in one of the social sciences, including geography, who wishes to specialize in practical politics and political science for the Master's degree; or

2. A student who has majored in one of the social sciences, including geography, who wishes to obtain a Master's degree in another chosen social science field, i.e., geography. In this case, he would take his Master's program in geography at Rutgers, and his obligation toward the Eagleton Foundation would be to participate in a seminar on practical politics.

Anyone interested in applying for one of these fellowships should write to Donald G. Herzberg, Executive Director, Eagleton Foundation, Rutgers-The State University, New Brunswick, N. J.

These fellowships are in addition to two graduate teaching assistantships in geography at $1,954 each, plus free tuition.

Geographical and Geological Congresses

The International Geological Congress will meet in Copenhagen, August 15 to 25, 1960, immediately following the sessions of the International Geographical Congress which will be held in Stockholm from August 6 to 13. Both meetings feature a large number of excursions throughout the Nordic countries.

Information on the Geographical Congress may be obtained from: U.S.A. National Committee, IGU, National Academy of Sciences-National Research Council, 2101 Constitution Avenue, N.W., Washington 25, D.C.

The first circular and travel information on the Geological Congress may be obtained from: Congress Travel, American Geological Institute, 2101 Constitution Avenue, N.W., Washington 25, D.C.

Applied Geomorphology Questionnaire

The International Geographical Congress at Rio de Janerio adopted the proposal of M. Verstappen to create a Commission of Applied Geomor-

phology. The Commission is composed of J. P. Bakker and J. Tricart, Presidents; and Messers. Kimaszewski, Nielsen, and Verstappen.

The Commission is now engaged in making a census of the research projects in applied geomorphology already completed or in progress throughout the world. It desires the names and addresses of all persons, whether professional geomorphologists or not, who are engaged in research relating geomorphology to practical application; a list of laboratories and organizations, university or not, which undertake research in geomorphology; and a list of publications dealing with applied geomorphology. Specifically, information on the following items is requested.

1. Name of specialist
   Primary specialty
2. Organization in which the research is done
3. Nature of research (precise and concise explanation of the work undertaken and its objectives)
4. Financial conditions under which this work is undertaken (delete where not applicable or state briefly the type of organization):
   a. a full time worker employed by an organization other than university,
   b. university laboratory working for a non-university organization,
   c. private research undertaken by a worker outside his principal activity,
   d. detachment or temporary mission at an organization other than university.
5. Publications on work of applied geomorphology already done by the investigator or by his organization
6. Has the investigator developed any new research methods within the scope of the problems which he has encountered? Name their nature and, if possible, give references to publications on this subject.

Louis O. Quam is coordinating the replies for the AAG and GSA. Anyone interested in cooperating with the Commission of Applied Geomorphology should send their questionnaire answers to Dr. Quam, Office of Naval Research, Washington 25, D.C.

Second Coastal Geography Conference

The Office of Naval Research and National Research Council are sponsoring the Second Coastal Geography Conference to be held April 5-6, 1960 at the Coastal Studies Institute, Louisiana State University, Baton Rouge. According to the First Circular, the Conference includes:

Program

Graham Evans (Imperial College): Development of the coastline of The Wash

Harold N. Fish (Houston): Development of Padre Island and filling of Laguna Madre between Rio Grande and Baffin Bay

Rufus J. LeBlanc (Houston): Origin and development of the modern shoreline of Texas

Andre Guilcher (Sorbonne): Coastal sand ridges and marshes near Grand Popo and Ouidah, Dahomey

Axel Schou (Copenhagen): The Danish moraine archipelago as a research field for coastal morphology and dynamics

L. M. J. U. vanStraaten (Groningen): (possibly on Rhone Delta)

John H. Vann (LSU): Geomorphology of the Guiana Coast

Hartmut Valentin (Berlin): Comparative study of the east and west coast morphologic features of Queensland

Harry P. Bailey (UCLA): Coastal climatology

Ph. H. Kuenen (Groningen): Recent Dutch contributions to coastal geology

J. A. Steers (Cambridge): Relation of archaeology and physiography in coastal studies

William G. McIntire (CSI): Methods of correlating cultural remains with stages of coastal development

John T. McGill (USGS): Compilation and evaluation of a map of coastal types of the world

James P. Morgan (CSI): Summary of activities and research program of the Coastal Studies Institute

Richard J. Russell (CSI): Background information for field excursions in coastal Louisiana

Excursions: Two days during the Conference will be spent in the field. A general excursion will visit the coast most affected by Hurricane Audrey, June 1957. Other excursions will be arranged to points of interest on the Louisiana Coast. Accommodations will be strictly limited. Details and costs will be announced in the Second Circular.

More detailed information will be sent to those who request the Second Circular from Dr. William R. Thurston, Executive Secretary of the Division of Earth Sciences, National Research Council, 2101 Constitution Avenue, N.W., Washington 25, D.C.

Request for Tests

The Committee on Tests, National Council of Geographic Education, is compiling a handbook on Measurement and Evaluation in Geography. Samples are needed of complete tests or individual questions at all grade levels from elementary through college to use as illustrative material for the handbook. Samples of subjective and objective tests, both oral and written, are desired. Also needed are those which test skills, attitudes, and appreciations, as well as subject matter. Please designate grade level. Send samples to Berenice M. Casper, Chairman, Committee on Tests, National Council of Geographic Education, 2632 K Street, Lincoln 10, Nebraska.

British-American Exchange of Geographers

A number of geographers both in the United States and in the British Isles have expressed their interest in the possibility of exchanging positions for a year or part of a year. Accordingly, the Placement Committee is offering to cooperate by maintaining lists of potential exchangees. The Committee will serve only as middlemen to establish the contact between geographers on the two sides of the Atlantic. All final arrangements -- including the possibility of securing supplementary grants -- will, of course, be made by the potential exchangees and the institutions and organizations they represent. Participants would not necessarily be limited to the teaching profession.

Any member of the AAG who is interested in such exchange either for 1959-60 or some later year should notify the AAG Placement Committee (The Library of Congress, Washington 25, D.C.) and submit the following information: (1) name, (2) age, (3) size of family, (4) present position and salary, (5) brief resume of experience in the field of geography, (6) specific interest, such as urban geography, cartography, climatology, or regional specialization, and (7) brief resume of type of exchange desired, such as type of work, locational preference, minimum salary expected and type of housing required. (An exchange of housing might be possible.) Any exchangee should be aware of the lower salaries in England and the differences in type of housing available.

The Placement Committee is requesting a similar list of potential exchangees from geographical associations in the British Isles. If this experimental exchange between British and American geographers proves successful, other countries may be added to the list later.

LETTERS . . .

Dear Editor:

Many American geographers have known Dr. L. Dudley Stamp intimately, and I believe that every American geographer knows about him. During my most recent visit with Dr. and Mrs. Stamp at their home in Ebbingsford Manor, in Bude, England, he told me that he is retiring this month (September) from his long-time position of professor and lecturer in geography at the University of London....He has been designated Professor Emeritus, so it will still be possible for him to serve the University. He retired voluntarily several years ahead of the age of compulsory retirement, so that he can devote his efforts and energies to his many activities not directly connected to the University of London.

Dr. Stamp's retirement, however, does not mean at all that he is quitting his work and research in geography. It means only that he is quitting his regular week-after-week lectures at the University of London. It merely relieves him of the regular routine classes. He told me that he was prompted to retire because at the University he was continually be-

sieged by this and that person, so that it gave him little or no time to accomplish and to complete any worthwhile research of his own.

Dr. Stamp now plans to (1) continue his own geographic studies and research, (2) continue his active participation in geographic affairs of the world, such as the I.G.U. (he is now serving the I.G.U. in the past-president's post of a vice president), (3) continue to meet certain lecturing engagements in different parts of the world, (4) continue to manage and direct Geographic Publications Ltd. (he is president), and (5) provide a headquarters office for the assembling, storing and distribution of all I.G.U. publications. This last task is a recently assumed activity which he offered to do for the I.G.U. When his offer was accepted, he received some five tons of former I.G.U. bulletins which had been stored with Tom's, Dick's and Harry's in many places. Now, for the first time, these materials are available from a single office....I believe he has started what may prove to be the first practical world headquarters for geographers.

Dr. Stamp has done much in the past to make geography mean more to the people of the world, and, it may well be that, following his retirement this month, he will become even more effective in enlightening the world about geographers.

---William A. Rockie
Soil Conservation Service
Spokane, Washington

Dear Editor:

The title of Albert Ballert's article "Off-Beat" Geographic References makes me marvel once more at the immense scope of geography, which encourages us to browse in the library so omnivorously.

May I mention two "off-beat" books that can perhaps entertain some geographers? One is Landscape into Art (1949) by Sir Kenneth Clark and the other is Constable and Clouds (1950) by Kurt Badt. Clark, a well known art historian, traces in his fully illustrated book the changing attitude of the painter toward the landscape. He discusses how medieval theology, expansion of settlements into forests, exploration and science have in turn, exerted influence on the painter's conception of nature and of landscape painting. In Constable and Clouds, Kurt Badt treats a narrower theme. At one place he stresses the fact that Constable's naturalistic cloud studies were based on careful observations of sky and land. Many such cloud studies have written on them the time of the day and the direction of wind. These two books remind me again that the geographer shares his interest in the natural environment with the artists as well as the scientists.

---Yi-Fu Tuan
International House
Chicago, Illinois

NEWS FROM GEOGRAPHIC CENTERS

Colgate University

The Department of Geography has doubled its staff with the addition of Armin K. Ludwig from the University of Illinois, as instructor. He will teach courses on cartography and urban geography, and has specialized in Latin America. Theodore Herman spent August in writing 30 articles on China for the Encyclopedia Britannica. The Geography Department is initiating discussions with interested Departments, notably, Economics and Sociology-Anthropology, concerning the setting up of a pre-planning major that would equip liberal arts students to enter professional planning schools and to fill apprentice planning positions.

Syracuse University

There have been two resignations from the Syracuse staff. Robert E. Dickinson has accepted the position of head of the Department of Geography at the University of Leeds in England. Clyde P. Patton resigned to take a position at the University of Oregon. Syracuse has added to its staff Douglas D. Carter, who received his Ph.D. from the University of Washington, and has for the past few years been working with C. Warren Thornthwaite as deputy director of the Laboratory of Climatology. He is carrying on research studies on problems of water balance. Dr. Carter will be in charge of the basic course in physical geography, and courses in climatology, and will also direct studies in advanced cartography.

George B. Cressey has returned to Syracuse after a leave of absence for teaching and study in Southwest Asia. He taught last year at the American University in Beirut. During the year he was able to visit many parts of the region, on which he is preparing a book. Dr. Cressey will offer courses in the Soviet Union, and a seminar on Southwest Asia.

John H. Thompson was promoted to the rank of professor. His study of the economic consequences of the St. Lawrence Seaway in up-state New York was published by the Syracuse University Press. His article on industrial distribution and intensity in Japan will appear soon in the Geographical Review.

Hibberd V. B. Kline and Don C. Bennett are working on a contract research study on new methods in empirical geomorphology. Vincent Mazzucchelli has joined the staff temporarily to work on this project. The first part of the report on tropical terrain types has been published by the Syracuse Research Institute. Dr. Kline is offering work in field methods and a seminar in physical geography for Master of Arts candidates. Dr. Bennett is offering the basic course in world regional geography.

Eleanor Hanlon was director of a summer institute on water conservation. She is offering advanced work in this field. She is also in charge of the course in elementary cartography. She has been asked to supervise the preparation of new maps devised especially for use in television. She has been invited to attend a national conference in California in November on water conservation problems.

Preston E. James returned to Syracuse after a summer at the University of Washington. Early in 1959 revisions of A Geography of Man and of Latin America will be published. With Nelda Davis he will publish a new 9th grade book The Wide World, A Geography, (The Macmillan Company). He is offering courses in Latin America, in the history of geographic thought, and is in charge of one of the core seminars for the Social Studies program on research and integration in the social sciences.

THESIS TITLES

Thesis titles are published in the March and November issues of The Professional Geographer. Titles should be submitted to Leslie Hewes, University of Nebraska, Lincoln 8, Nebraska, by February 1 and October 1, respectively.

Ph.D. Dissertations Completed

Alliston, Franklin Colin "The Geography of a Community: Bloomfield, New Jersey (A Source Book for Teachers)." Teachers College, Columbia University, 1958.* /Ed.D./

Anderson, Francis William "Functional Interrelationships of Urban Centers." University of Washington, 1958.* Microfilmed.

Atwell, Donald L. "Eastern Pakistan: A Study in Political Geography." Clark University, 1958.

Baker, William B. "The Areal Growth of Omaha, Nebraska, with Emphasis on the Westside Area." University of Nebraska, 1958.* Microfilmed.

Beatty, George Franklin "Land, Water, and Agriculture in Village Communities of the Upper Damodar Valley, India." University of Illinois, 1958.*

Berry, Brian Joe Lobley "Shopping Centers and the Geography of Urban Areas: A Theoretical and Empirical Study of the Spatial Structure of Intraurban Retail and Service Business." University of Washington, 1958.* Microfilmed.

Best, Thomas D. "The Role of the Atchinson, Topeka, and Santa Fe Railway System in the Economic Development of Southwestern United States: 1859-1952." Northwestern University, August 1958.*

Beveridge, Ronald M. "Population Migration Within Illinois, 1935-40: An Analysis of Selected Data." University of Illinois, September 1958.*

Beyer, Jacqueline L. "An Analysis of the Resource Use Pattern of the Uncompahgre Irrigation Project." University of Chicago, December 1957. Published: Dept. of Geog. Res. Paper No. 52.

Blaut, James M. "Chinese Market Gardening in Singapore: A Study in Functional Micro-Geography." Louisiana State University, 1958.* Mifilmed.

Brown, Robert Harold "Political Areal Functional Organization: With Special Reference to St. Cloud, Minnesota." University of Chicago, 1956. Published: Dept. of Geog. Res. Paper No. 51.

Browning, Clyde Eugene "The Structure of the Mexico City Central Business District: A Study in Comparative Urban Geography." University of Washington, 1958.* Microfilmed.

*Available for inter-library loan

Bugelli, Delmas A. "The Montagna Pistoiese: Population-Supporting Characteristics of an Italian Apennine Region." Columbia University, 1957.* Microfilmed.

Burghardt, Andrew F. "The Political Geography of Burgenland." University of Wisconsin, April 1958. Microfilmed.

Carter, Douglas Broadmore "The Relation of Irrigation Efficiency to the Potential Development of Irrigated Agriculture in the Pacific Northwest." University of Washington, August 1957.* Microfilmed.

Colby, Mary McRae "The Geographic Structure of Southeastern North Carolina." University of Chicago, August 1958. Published: Dept. of Geog. Res. Paper No. 54.

Cruttenden, Charles H. "Characteristics of Manufacturing Land Use in the Syracuse Area." Syracuse University, February 1958.* Microfilmed.

Delliquadri, Lawrence M. "A Contribution to the Climate of Ethiopia." Clark University, May 1958.*

Forward, Charles N. "The Shipping Trade of Newfoundland." Clark University, May 1958.*

Fuson, Robert "Cultural Geography of the Central Savanna of Panama." Louisiana State University, 1958.* Microfilmed.

Gabler, Robert Earl "An Analysis of Community Study in Central Schools." Teachers College, Columbia University, 1957.* /Ed.D./

Garrigus, Woodford McD. "Average Slope and Agricultural Productivity in Ohio." Clark University, May 1958.*

Gosling, Lee A. P. "Patterns and Problems of Livestock Production in Malaya." University of Michigan, February 1958.* Microfilmed.

Heath, Willis Robertson "Maps and Graphics for the Blind: Some Aspects of the Discriminability of Textural Surfaces for Use in Areal Differentiation." University of Washington, 1958.* Microfilmed.

Hendrickson, George Rex "The Process of Socio-Economic Change, As it Pertains to Early Post World War II Developments in Australia, Having Direct Influence on that Nation's Postwar Emerging International Trade Patterns." University of Michigan, February 1958.* Microfilmed.

Hiltner, John Jr. "An Analysis of the Contemporary Agricultural Geography of the Gukurova." Northwestern University, August 1958.*

Hoag, Leverett P. "A Critical Study of Methods for Delimiting Multiple-Component Regions." University of Minnesota, May 1958.*

Honzatko, George J. "Macomb County: A Study of the Expansion of Urban Uses and the Absorption of Farmland." University of Michigan, February 1957.* Microfilmed.

Jewell, William Franklin "The Influence of Shore Processes on Shore-zone Utilization in Michigan." University of Michigan, February 1957.* Microfilmed.

Jeyasingham, William "The Geography of Jaffna Town /Ceylon/." Clark University, April 1958.*

*Available for inter-library loan

Johnsrud, Robert O. "Geographic Problems in the Functioning of the State Government of Wisconsin." University of Wisconsin, 1958. Microfilmed.

Kakiuchi, H. George "The Rise and Development of the Fruit Industry on the Okayama Plain." University of Michigan, February 1958.* Microfilmed.

Karamat, Saida Kulsoom "Western Frontier of West Pakistan: A Study in Political Geography." University of Michigan, June 1958.* Microfilmed.

Karinen, Arthur E. "Aspects of Maryland Population." University of Maryland, June 1958.*

Khan, Fazle Karim "Comparative Agricultural Geography of East Pakistan and Louisiana." Louisiana State University, 1958.* Microfilmed.

Kostbade, J. Trenton "Geography and Politics in Missouri." University of Michigan, June 1957.* Microfilmed.

Lahey, James "On the Origin of the Dry Climate in Northern South America and the Southern Caribbean." University of Wisconsin, April 1958. Published: Dir. of Air Force Cambridge Res. Center, ARCD, Scientific Report No. 10, Cont. 19-604992, AFCRC-TN 58-218 Madison, Wis. Microfilmed.

Lal, Amrit "Some Characteristics of Indian Cities of over 100,000 Inhabitants in 1951, with Special Reference to their Occupational Structure and Functional Specialization." Indiana University, June 1958.* Mifilmed.

Larimore, Ann Evans "The Alien Town: Patterns of Settlement in Bosuga, Uganda." University of Chicago, August 1958. Published: Dept. of Geog. Res. Paper No. 55.

Lewis, Peirce F. "Geography in the Politics of Flint." University of Michigan, February 1958.* Microfilmed.

Marple, Robert P. "The Transition Zone Between the Corn Belt and Hard Winter Wheat Belt." University of Nebraska, 1958.* Microfilmed.

McKinney, William M. "Geographic Aspects of Hospital Planning." University of Florida, June 1958.* Published by the University of Florida. Microfilmed.

Miles, Edward J. "Political Regionalism in New York State, 1860-1954." Syracuse University, May 1958.* Microfilmed.

Multhauf, Delmar Charles "A Case Study Technique for Studying Manufacturing in a College Course in Economic Geography." Teachers College, Columbia University, 1958.* /Ed.D./

Myatt, Wilfred G. "The Willamette Valley." Clark University, April 1958.*

Newcomb, Robert M. "The Husbandry of Pepper, Ginger, and Cardamom on the Malabar Coast of India before the Sixteenth Century." University of California, Los Angeles, March 1958.*

Pattison, William David "Beginnings of the American Rectangular Land Survey System: 1784-1800." University of Chicago, December 1957. Published: Dept. of Geog. Res. Paper No. 50.

*Available for inter-library loan

de Percin, Fernand "Microclimatology of a Subarctic Spruce Forest and a Clearing at Big Delta, Alaska." Harvard University, June 1958.

Rau, Herbert L., Jr. "The Agricultural Land Use and Settlement Patterns in the Sabana de Bogota, Colombia." Northwestern University, August 1958.* Microfilmed.

Schroeder, Carlton Raymond "The Physical Geography of the Palouse Region, Washington and Idaho, and Its Relation to the Agricultural Economy." University of California, Los Angeles, January 1958.*

Senathirajah, Nallamma Subramaniam "Interdiurnal Characteristics of the Winter Season in Southeastern United States." Ohio State University, June 1958.* To be microfilmed.

Smith, Helen T. "Urban Study of Three Townships in Illinois." Clark University, April 1958.*

Swisher, Carl L. "Agricultural Development Regions and Subregions of Puerto Rico." Northwestern University, 1958.*

Thrower, Norman J. W. "Contrasting Cadastral Survey Systems in Ohio and their Effect on Rural Settlement." University of Wisconsin, August 1958. Microfilmed.

Vance, Jean Laing "The Central Business District of the British City with Special Reference to Nottingham." Clark University, April 1958.*

Webb, John W. "An Urban Geography of the Minnesota Iron Ranges." University of Minnesota, May 1958.*

Webb, Kempton E. "Food Supply of Belo Horizonte." Syracuse University, March 1958.* Microfilmed.

Winsberg, Morton D. "Isles of Pines: A Study in Economic Geography." University of Florida, June 1958.* Microfilmed.

Wu, Cheng Tsu "Chinese People and Chinatown in New York City." Clark University, April 1958.*

Zapata-Rivera, Lucila "Geography of Puerto Rico: A Text for Secondary Schools." Teachers College, Columbia University, 1958.* /Ed.D./

Ph.D. Dissertations in Process

Al-Khashab, Wafiq H. "The Water Budget in the Tigris-Euphrates Basin." University of Chicago.

Baker, Simon "The Changing Pattern of Land Use in the Dry Zone of Ceylon as Influenced by the Colombo Plan: A Critical Study of Planned Agricultural Development in the Dry Tropics." Clark University.

Blij, Harm Jan de "The Geomorphology of Swaziland." Northwestern University.

Chardon, Roland E. "Geographic Relationships between Plantations and Other Forms of Agriculture in Northern Yucatan." University of Minnesota.

Chew, Margaret "A Geographic Study of Urban Service Areas with Special Reference to LaCrosse, Wisconsin." Clark University.

*Available for inter-library loan

Chung, Roy "A Geographic Analysis of Population Patterns and Trends in the British Caribbean." University of Wisconsin.

Cornwall, Brooke "The Geographical Regions of the Canadian Cordillera." Clark University.

Coulson, Lois Elaine "An Example of Tourism in Michigan Berrien County." University of Illinois.

Durland, Robert E. "The Balance Between Agricultural Population and Production in the Plan Chillan Area of Chile." Northwestern University.

Emory, Samuel T. "Economic Geography of Clarke and Frederick Counties, Virginia." University of Maryland.

Fekete, Joseph A. "The Development of the Tourist Industry Along the Central Southwest Coast of Florida and Its Impact on the Physical and Cultural Landscape." University of Illinois.

Gaede, Herbert L. "The Development of the Resources of the Middle Wisconsin River Valley." Northwestern University.

Gallagher, James W. "Drought in Southern Illinois." University of Illinois.

Gould, Peter R. "Transportation and Economic Development in Ghana." Northwestern University.

Hadleigh-West, Fred "Ecology of the Arctic Village, Alaska, Indians." Louisiana State University.

Hazel, Joseph A. "The Ecology of Negro Agricultural Slavery in Alabama, Florida, and Mississippi in 1860." Teachers College, Columbia University.

Kowitz, William T. "The Calumet Segment of the Illinois-Indiana Boundary: Problems of a State Boundary Superimposed by an Integrated Spreading Urban Complex." Northwestern University.

Lee, Chan "Techniques and Ecology of Rice Production in Louisiana." Louisiana State University.

Ludwig, Armin K. "The Lower Wabash Valley: A Generator, Recipient and Corridor of Commodity Movements by Railroad, Highway, Waterway, and Pipeline." University of Illinois.

McDermott, George "Frontier Settlement in the Great Canadian Clay Belt." University of Wisconsin.

Megee, Mary C. "Monterrey, Mexico: The Urban Complex and the Circulation Pattern." University of Chicago.

Northam, Ray M. "An Analysis of Recent Industrialization in Northwest Georgia (1952-1957)." Northwestern University.

Rosenberg, Myron "The Effectiveness of Government Soil Conservation Programs in American Agriculture." University of Chicago.

Rugg, Dean S. "Urban Geography of Alexandria, Virginia." University of Maryland.

Schwartzberg, Joseph "The Regionalization of the Occupational Pattern of India with Illustrations from Type Locality." University of Wisconsin.

Simkins, Paul "Regionalisms in Arizona's Recent Immigration." University of Wisconsin.

Solly, Marion W. "The Ports of Malaya and their Hinterlands." University of Minnesota.

Stevens, George "The Geography of Beef Feeding and Marketing in North Central Illinois." University of Wisconsin.

Sutherland, Stephen M. "Climate and Climatic Regions of the Missouri River Drainage Basin." University of Illinois.

Taylor, Harry W. "The Location of Industry in Sao Paulo State, Brazil: A Study of Locative Factors." University of Maryland.

Taylor, James Addison "Tourist Outfitters Industry of Ontario." University of Illinois.

Thomas, Frank H. "The Railroad and Its Region: A Case Study of the Denver and Rio Grande Western Railroad and Its Freight Traffic." Northwestern University.

Torrey, Edward "Cuba's Potentialities for Rice Production." University of Wisconsin.

Masters' Theses Completed

Adams, Charles F. "Problems of Population Support in Walton County." Florida State University, May 1958.*

Brisbois, Alfred LeRoy "Dry Climates of Oregon." Oregon State College, 1958.

Carpenter, Clifton C. "Barrett's Midway Inc. As a Small Town Bluegrass Clothing Industry." University of Kentucky, 1958.

Cirino, Michael R., Jr. "Current Mapping in Latin America." University of Maryland, 1958.*

Cooper, Clare C. "The Role of Railroads in the Settlement of Iowa: A Study in Historical Geography." University of Nebraska, 1958.*

Coxe, Robert L. "The Invasion of Sicily: A Study in Military Geography." University of Oklahoma, February 1958.

Denevan, William M. "The Upland Pine Forest of Nicaragua." University of California, Berkeley, 1958.

Draine, Edwin H. "A Geographic Study of Land Subsidence in the Long Beach Harbor Area." University of California, Los Angeles, 1958.*

Edward, Clinton R. "Quintana Roo: Mexico's Empty Quarter." University of California, Berkeley, 1957.

Erickson, Kenneth A. "A Population Geography of the Grants Pass District, Oregon." University of Oregon, 1958.* Microfilmed.

Falconer, William H. "Some Problems of Historical Geography." Florida State University, August 1958.*

Fisher, Jack C. "Geneva: A Study of Urban Geography." Syracuse University, 1958. Microfilmed.

Fox, David J. "The Morphology of the Elross Lake Area, Quebec-Labrador." University of California, Berkeley, 1958.

Gardner, Charles "Railroad Abandonment in Oklahoma." University of Oklahoma, August 1958.

*Available for inter-library loan

Gillenwater, Mack H. "The History of the Hanging Rock and Eastern Kentucky Ironmaking Industry." Marshall College, Huntington, West Virginia, 1958.

Goranson, Leonard "The Distribution of the Synthetic Textile Fiber Industry in the United States by Counties for 1954." State University of Iowa, 1958.

Graham, John C. "The Settlement of Merced County, California." University of California, Los Angeles, 1957.*

Groschelle, Frank J. III "Land Use in Pulaski County, Kentucky." University of Nebraska, 1958.*

Gruys, Sophia A. "Rural Occupance Types in Southwestern Minnesota and Their Variations by Size Groups." University of Georgia, 1958.*

Gutenschwager, Gerald A. "The Scrap Iron and Steel Industry of Metropolitan Chicago." University of Chicago, 1957. Microfilmed.

Hall, Norman Reese "Industrial and Human Resources of the Sweet Home, Oregon, Area." Oregon State College, 1958.

Hammett, John E. "Wheat Production, Transportation, and Marketing for Anglo-America." University of Chicago, 1958. Microfilmed.

Harris, Samuel Morgan "Geography of Costa Rica." Oklahoma State University, June 1958.* /M.S./

Hartley, Robert A. "A Regional Study of the Roseburg District, Oregon." University of Oregon, 1958.* Microfilmed. /M.S./

Heitz, Catherine Louise "The Evolution of the Lima, Ohio, Oil Industry." Miami University, Oxford, Ohio, 1958.*

Indans, Janis "Geographical and Economical Aspects of the Soviet Forced Labor System." University of Chicago, August 1958. Microfilmed.

Johnson, Donald A. "An Examination and Evaluation of Florida's Industrial Development Since 1950." Florida State University, August 1958.*

Johnston, John S. "Plantations in Sixteenth and Early Seventeenth Century Ireland." University of Georgia, 1958.*

Laska, John A. "The Development of the Pattern of Retail Trade Centers in a Selected Area of Southwestern Iowa." University of Chicago, 1958. Microfilmed.

Little, Richard S. "Selection of Potential Industrial Land." Syracuse University, 1958. Microfilmed.

Long, Huey B. "General Education and Geography in Florida Junior Colleges." Florida State University, August 1958.*

Lundin, Herbert "Geography of Tourism in Vilas and Oneida Counties, Wisconsin." University of Colorado, 1958.*

Mahmud, Tawfik H. "Processing and Marketing Aspects of the Date Industry in the Coachella Valley, California." University of California, Los Angeles, 1958.*

McGuire, Carroll Philip "Resource Base in the Economy of Albany, Oregon." Oregon State College, 1958.

*Available for inter-library loan

Neel, Earl M. "Hell's Canyon Controversy: Proposed Development of a Unique Water Power Site." Florida State University, August 1958.*

Pawling, John "A Geographical Analysis of the Cacao Industry of Costa Rica." Pennsylvania State University, 1958.

Preston, Richard Ellis (a) "Wenatchee, Washington: A Study in Community-Industry Relations"; (b) "Java: A Study in Population and Settlement Geography." University of Washington.* Microfilmed.

Richards, Wayne Elliott "Survey of the Resources of Union County." Oregon State College, 1958.

Sadezky, Hannelore "The Geographical Pattern of School Desegregation in the South." Michigan State University, 1958.*

Scheaffer, John R. "A Geographic Approach to Stream Classification." University of Chicago, June 1958. Microfilmed. /M.S./

Schroeder, Walter A. "Delimitation of the Telephone Hinterland of Metropolitan Chicago." University of Chicago, August 1958. Microfilmed.

Severtson, Dale "The Role of the Columbia River Transportation in the Pacific Northwest Resource Development." Oregon State College, 1958.

Shea, Philip "Land Use in the Gun Lake Outwash Plain." Michigan State University, 1958.*

Smith, William E. "Commercial Air Transportation of Will Rogers Field, Oklahoma City." University of Oklahoma, June 1958.

Springer, Clement D. "Millwork Plant Location Applied to the Upper Mississippi Valley." State University of Iowa, 1957.

Stafford, Howard "An Analysis of the Spatial Variations in the Location of the Paperboard Container Industry in Selected Counties of the United States, 1953." State University of Iowa, 1957.

Starsinic, Donald E. "State of Birth and the American South: A Method of Creating Mortality-Corrected State of Birth Estimates of Interstate Migration Patterns of the American South." University of Chicago, 1957. Microfilmed.

Sternstein, Lawrence "Manufacturing at Hunt's Point, New York." Syracuse University, 1958. Microfilmed.

Stevens, Richard E. "Agricultural Regions of the Northern High Plains of Texas." University of Colorado, 1958.*

Stockdale, William B. "A Geographic Survey of the Effects of the Conemaugh River Reservoir Project Upon the Cultural Landscape." Pennsylvania State University, 1958.

Sutton, Imre "A Comparative Analysis of Environmental Factors in the Planning and Construction of Multiple-Purpose Dams in the United States." University of California, Los Angeles, 1958.*

Thomson, Clarke W. "Crop Associations in Northeastern Colorado, 1939-1949." University of Colorado, 1958.*

Toth, Julius S. "Economic Geography of the Iquitos Region of Peru." University of Colorado, 1957.*

Tschirley, Paul Richard "Recreation Resources of the Stehekin Water Shed." Oregon State College, 1958.

*Available for inter-library loan

Urquhart, Alvin W. "The Landforms of the Cockpit Country and Its Borderlands, Jamaica." University of California, Berkeley, 1958.

Vigh, Charles Allen "Population Patterns in the Republic of Honduras." Ohio State University, 1958.

Walder, Margaret "The Historical Geography of Mission San Juan Capistrano, California." University of California, Los Angeles, 1958.*

Wandless, John "The Changing Significance of the Balkan Ports of Salonika and Istanbul." University of California, Los Angeles, 1958.*

Wang, Chen (a) "The Role of Irrigation Ponds in the Agricultural Development of the Taoyuan Tableland, Taiwan"; (b) "Irrigated Agriculture in Imperial Valley, California"; (c) "Ch'ientao: An Irrigation Region of Northwestern China." University of Washington.* Microfilmed.

Weber, Dickinson "A Comparison of Two Oil City Business Centers (Odessa-Midland, Texas)." University of Chicago, August 1958. Microfilmed.

Weinzierl, Edward J. "The Future of Colorado's Lumber Industry." University of Colorado, 1958.*

Widdison, Jerold G. "Historical Geography of the Middle Rio Puerco Valley, New Mexico." University of Colorado, 1958.*

Willberg, Calvin Gus "The Physical Elements of the Ohio River Valley and Basin." Ohio State University, 1958.

Williams, Henry G., Jr. "Oneida County-Agricultural Geography." Syracuse University, 1958. Microfilmed.

Woolever, C. William "A Study of the Source and Characteristics of the Manufacturing Labor Force in Franklin, Ohio." Miami University, Oxford, Ohio, 1958.*

Zakrzewska, Barbara "Poland: The Relation of Physiography, Soils and Land Use to Continental Glaciation." Indiana University, 1957.*

*Available for inter-library loan

PERSONAL NEWS

Griffith Taylor was elected the first President of the newly formed Institute of Australian Geographers at Adelaide in August. In the same month he became President of the Geographical Society of New South Wales for the third time. In August he published two books, Sydney-side Scenery (Sydney) and Journeyman Taylor (London).

Lewis Alexander of Harpur College is on leave for the coming academic year to conduct field work under a contract with the Office of Naval Research on offshore claims in northwestern Europe. He will visit the countries bordering the North Sea, and Ireland and Iceland, and will return to Harpur in September 1959.

Curtis M. Wilson, Hartnell College, served on active duty at Fort Ord, California, seven weeks during the summer. The first two weeks were spent on an Alert-Implementation Team to test and evaluate the Fort's current defense plans and operation of emergency teams. This was followed by five weeks on the staff and faculty of the Sixth U.S. Army Intelligence School.

Robert E. Dickinson has left Syracuse University of accept the position of Professor and Head of the Department of Geography at the University of Leeds, Yorkshire, England. He has just completed a year's study, under a Guggenheim Fellowship, of the commuting patterns in Western Europe and their impact on problems of city and regional planning. Most of the time was spent in France, Belgium, and Germany. Dr. Dickinson wishes to continue his research on urban geography in the United States, and would welcome the opportunity to teach a 1959 summer session in a Department of Geography in the U.S.

David H. Miller, formerly with the Quartermaster Research and Engineering Center, Natick, Mass., is now at the University of Georgia where he is giving a course in climatology and a seminar on the geographical aspects of hydrology which stresses the relation of such processes as moisture transport, precipitation, infiltration, runoff and evapotranspiration to landuse, climate and terrain or landscape elements. At the end of this quarter he will go to Berkeley to work with the Forest Service on their snow program.

NEW PUBLICATIONS

Pleistocene Man at San Diego. George F. Carter. The John Hopkins Press. Baltimore. 1957. 400 pp. illust. $8.00.

Despite the compatibility of such disciplines as archaeology, anthropology, geography, geology and other related fields, few examples exist in American literature of an attempt to use a many-fold approach to solve the problem of man's antiquity and describe his ancient milieu. Carter's provocative book is one of the first to bring a geographic orientation to archaeological research. This study should stir researchers in related fields into greater interdisciplinary thinking.

To correlate time relationships of ancient man with his natural setting the author used a system of cross-checking data from various disciplines. The past and present of climate, soils and vegetation, and the relationship of Pleistocene terraces to eustatic sea level changes were intercalated with cultural stratigraphy. To aid in solving the long-sought-for time equation, positive dates were established through the use of radiocarbon analysis. Pleistocene Man at San Diego is well documented with maps, charts, cross sections, profiles, photos and drawings. This synthesizing study is an example for the cultural geographer, and although controversial, the orientation, data and conclusions are a challenge to the archaeologist.

---William G. McIntire

Rivers, Man and Myths. Robert Brittain. Doubleday & Co., Inc. Garden City, New York. 1958. 288 pp. illust. $4.50.

To support his thesis that "between men who change nature consciously and rivers whose work is witless, there is a deep affinity," the author goes back to the beginnings of rivers and the beginnings of man, and traces their changing relations up through the 10th century A.D. With skill and perception, Mr. Brittain writes of the reindeer hunters and their dependence on streams, the invention of the fish hook as a triumph over the spear, the start of agriculture and use of water for irrigation, the growth of cities and their needs for water, and he describes the great irrigation works of Mesopotamia and Egypt, ascribing their differences to contrasts in flooding characteristics. The changing degree of dependence of man on rivers brought forth changing attitudes toward rivers, their deification and the growth of superstitions about rivers some of which remain today, as the breaking of a champagne bottle at a ship launching and the association of a river with death, "one more river to cross." The author sees the rivers playing an important role in the spread of trade and the growth of the early empires of the Mediterranean and Orient, a period marked also by the beginnings of more scientific observation of rivers. As man gained more knowledge of rivers, he discovered how to make rivers work for him. Putting the rivers to work was indeed a milestone in man's relations

with rivers, giving him power and an increasing freedom from drudgery. Although this milestone was passed in the 10th century, the full potential of the discovery awaited several centuries of development, a story beyond the scope of this book which takes the reader on a fascinating tour of the human adventure from "fish spears to water mills."

Dynamical and Physical Meteorology. George J. Haltiner and Frank L. Martin. McGraw-Hill Book Co. 1957. xi and 470 pp. illust. $10.00.

Here is a thoroughly up-to-date textbook of dynamical and physical meteorology, which includes the most important results of research on the atmosphere during the past decade. This text assumes little mathematics beyond differential and integral calculus. However, since some vector calculus is employed the authors briefly review these operations in Chapter 1.

Other chapters treat, in sequence, the thermodynamics of dry air, moist air, hydrostatic equilibrium, and geopotential determinations, vertical stability and convection, the nature of radiation, solar radiation and the earth-atmosphere system, terrestrial radiation, synpotic consequences of terrestrial radiation, the mean heat of the earth-atmosphere system, the equation of motion, horizontal frictionless flow, variation of the wind and pressure fields in the vertical, wind structure in the friction layer, diffusion of heat and water vapor, diffusion of atmospheric pollutants, frontogenesis, surfaces of discontinuity, the mechanism of pressure change, vorticity and circulation, the perturbation theory, dynamic forecasting by numerical methods, and last, the general circulation.

While each of these topics is treated independent of the other chapters' materials, the organization provides excellent continuity throughout.

This text, designed primarily for meteorology majors, will serve as an excellent reference work for physical geographers doing research in the field of dynamic climatology.

---James F. Lahey

American Agriculture: Geography, Resources, Conservation. Edward Higbee. John Wiley & Sons, Inc. New York. 1958. x and 399 pp. illust. $7.95.

Edward Higbee has made a worthwhile contribution to the general literature on United States agriculture for students. A well balanced, analytical description on a regional basis is given; and although the approach is one of a sweeping view, sufficient detail is present to prevent, for the most part, the impression of over-generalization.

The book is divided into three parts. The first part, in three chapters, is concerned with "Land Resources and Their Use," "Climate and Agriculture," and "Soils and Land Capability" -- all in 48 well written pages. The second part, in thirteen chapters, considers the dry West. The integrating factor of these chapters is water, and it receives adequate and proper emphasis. The third part, consisting of eleven chapters, is devoted to the humid East, which, because of the variety of climates, land-

forms and other phenomena lacks an overall general theme such as water serves for the discussion of the dry West.

Maps are used profusely. The maps of representative farms, each farm having been visited by the author, are most rewarding and provide uniqueness. These maps indicate management practices, such as irrigation, drainage, terracing, crop land, slope, land capability classes, shelterbelts, and transportation patterns -- the items mapped showing significance for the region in which a particular farm is situated. There is a variety of United States, state and regional maps, each of which serves a useful purpose, but it is probable that the maps of the larger areas would have been enhanced by increased size. The appendix contains a number of the Bureau of the Census crop maps.

There is abundant use of meaningful statistical data in tabular form and within the text. These data are used to make apt comparisons and to show important trends; yet, the statistical material is wisely used and does not overload the book with unnecessary detail.

American Agriculture: Geography, Resources, Conservation, as stated by the author, was designed to serve students in geography, the agricultural sciences, vocational agriculture, and conservation. It should serve all of these students well, and it will prove to be an addition to the library of the professional geographer interested in agricultural geography of the United States.

---Chester F. Cole

California Lands, Ownership, Use, and Management. Samuel Trask Dana and Myron Krueger. American Forestry Association, Washington, D.C. 1958. vi and 308 pp. illust. $4.50.

California Lands concerns the ownership, use, and management of the natural resources of 100,000,000 acres of land and water by 14,000,000 Californians. The area is vast and widely varied in character. Roughly one third is valuable for forest and watershed purposes, about one fifth is barren and desert land, and approximately one sixth is susceptible to cultivation. Scenic and recreational resources--beaches, forests, lakes, mountains, and wildlife--are outstanding and numerous.

Among the states in the nation, California is first in cash income, second in the production of lumber, and third in value of mineral production. Thus, the need for continued wise management of natural resources is of growing importance. Since World War II there has been a new attitude developed toward management by private owners of forest and range resources. The increasing demand for these resources, increased values, and improved technologies of production and utilization have made management profitable.

Not only are the authors of California Lands concerned with the inescapable problem of insuring that the natural resources meet present day needs but perhaps of greater concern is the problem of meeting those which will be generated by the skyrocketing population increase that is expected within the next half century. Multiple use of the resources, commonly thought of as a cornucopia which will yield unlimited supplies

of essential products, must be extended and the many incompatibilities smoothed out if Californians are not only to live, but to live well.

To insure complete utilization as well as conservation of California's resources the authors conclude that the most promising approach to this goal is the creation by the State Legislature of a Natural Resources Council consisting of qualified representatives of the state and federal agencies, the private interests, and the citizenry of the state. The duties of such a council should be:

1. To identify, stimulate, and coordinate studies of current problems connected with the ownership and management of natural resources;

2. To advise the legislature, the Governor, and the various agencies and interests represented in its membership with respect to natural-resource problems, administration, and management; and

3. To facilitate contacts and promote cooperation among the groups and interests represented in its membership.

Geographers who are interested in the allied fields of conservation, utilization, and social adjustments will find this book provocative and stimulating. The chronological summary of selected Federal and State legislation relating to wildland ownership in California and an extensive annotated bibliography contained in the appendices will prove most helpful to students and researchers alike.

---J. L. Taylor

World Geography. Otis W. Freeman and John W. Morris, eds. McGraw-Hill Book Co., Inc. New York. 1958. viii and 623 pp. illust. $10.75.

In presenting the physical environments and cultural aspects of the various parts of the world, the 14 contributing authors, all well known geographers, and the editors follow one general formula which provides a balanced treatment and a basis for comparison of countries and regions. Both parts of the book, Western Hemisphere and Eastern Hemisphere, open with a sketch of the general physical setting and of the peoples. Then, each region or country is treated, giving a close-up view of relief, climate, soils, vegetation, resources and economic development, and population. Considerable emphasis is placed on human activities. Each chapter ends with a section "In Perspective," a brief summary of main points, and with exercises and short list of selected references. The book starts at home, the description of the United States being more detailed than that of other parts of the world. The final chapter, "People in the Changing World," abandons the regional detailed view, and focuses on world problems created by uneven distribution of peoples, resources, and productive capacity.

A 15-page atlas of colored maps included in the introductory chapter, demonstrate Hal Shelton's skill in combining shaded relief with a depiction of the earth's summertime colors. Throughout the volume there are numerous excellent maps, photos, graphs and diagrams. These high-quality maps are by Jean Paul Tremblay, with Harold K. Faye, map design consultant. A brief glossary of terms, and a good index complete the volume.

Manufacturing in the St. Lawrence Area of New York State. John H. Thompson and James M. Jennings. Maxwell School Series, Syracuse University Press. 1958. xi and 137 pp. illust. $3.00.

The St. Lawrence Seaway and Power Projects have attracted attention to the industrial expansion possibilities of land bordering the seaway. "How much industrial expansion can be expected?" ask the authors. Furthermore, how can the question be answered? Having selected the St. Lawrence Area of New York State (that is, Jefferson, St. Lawrence, and Franklin Counties), including such towns as Malone, Messena, Ogdensburg, and Watertown, the authors state, "The purpose of this study is to provide ... an examination of locational problems, historical development, livelihood structure and details of the current distribution of manufacturing establishments and employment (factory inventory was made in 1955-56)."

In terms of employment, primary metals, paper products and paper, and machinery, industries rank in that order. Wood and food establishments are most numerous and the area is one of the most agricultural in the state. Watertown, Messena, and Ogdensburg, the three largest urban places, contain over 60% of the manufacturing employment in the study area. In 1955 the area included 372 factories employing some 20,000 persons and only 34 of the 372 factories have more than 100 employees but they account for over 80 per cent of the employment.

The authors evaluate the geographic aspects by saying: "A poor location, a late start, and early sectionalism have taken their toll. The Area's peripheral location to the major areas of economic progress is the chief problem to be solved if the future rate of development is to be accelerated. The movement into the Area of branch plants of firms with nation-wide organizations have been important to the level of manufacturing activity and this should be vigorously encouraged. The Seaway and Power Projects provide the best selling point the Area has ever had."

One wonders if the area's "poor location" said to be "off the beaten path" is not becoming more of a "central location" within the economy of the Canadian-United States Industrial Belt and if the authors estimate of future growth is too conservative.

An important part of the text are the 15 maps showing the areal distribution of manufacturing, 32 tables of manufacturing employment, major market areas and sources of raw materials and questionnaire forms used in the study. This study - because of the method used and the conclusions - should be required reading for graduate students and advanced undergraduates interested in regional economic geography. Furthermore, the study may be included profitably in supplementary assignments in graduate and undergraduate courses in regional economic geography because of the field research, the technique used, the method of presentation, and the conclusions.

---Albert S. Carlson

Geography via Television. Jewell Phelps. National Council for Geographic Education. Norman, Oklahoma. 1958. v and 22 pp. illust. $1.00.

This informative little booklet, part of the "Do It This Way" series, presents a lot of helpful guidance on planning and presenting television programs on geography. With the increasing use of this method of education, the timely appearance of this carefully prepared guide should benefit a large number of geographers.

Since the beginning of the year, the National Council for Geographic Education has also published four Professional Papers: No. 16, "Forces Contributing to Changes in Geographic Education" by Earl B. Shaw; No. 17, "Population Growth and Its Impact on Geographic Education" by Phillip Bacon; No. 18, "The Elementary Social Studies: Sense and Nonsense in Integration" by Edward Coleson; and No. 19, "Changing Emphasis in Geographic Education" by Henry J. Warman. These cost 25 cents each. The NCGE has also just published the Index to the Journal of Geography (1922-1956). The price is $5.00 cloth back and $4.00 paper back.

Any of these publications may be obtained from: Secretary, National Council for Geographic Education, University of Oklahoma, Norman, Oklahoma.

Great Lakes Overseas Commerce. Albert G. Ballert, Great Lakes Commission. Ann Arbor, Mich. 1958. 27 pp.

In prospect of the opening of the nation's "fourth seacoast" in 1959, the Great Lakes Commission has assembled data on the trade between Great Lakes and overseas ports to aid in appraising and planning future trends. This compact little report opens with a few brief comments on significant features of Great Lakes overseas commerce of the United States, such as volume growth, dollar value, overseas trade areas, and trade links. The body of the report is 17 tables which present a wealth of information in well-arranged, useful form. These tables include historic and current data (through 1956) on many aspects of the United States Great Lakes water-borne traffic, for example, shipping weight and dollar value of total commerce, imports, and exports for each port, on origin, destination, and commodity bases. Much of the material has not been previously published.

Geography and World Politics. Lucile Carlson. Prentice-Hall, Inc. New Jersey. 1958. x and 534 pp. illust. $8.75.

To introduce the principles of political geography, the author first defines and describes the field and its historical growth and development, with considerable emphasis on "power." The power-potential of a state is said to rest on "the space factors of location, size, and shape (and climate and topography are included here); population, resources, and industry; and social and political structure." These elements and their political geographical significance are examined and discussed in detail, with numerous current and historical examples. Boundaries, as a main source of international friction, receive particular attention. Part One

concludes its analysis of the primary factors in political geography with a penetrating look into the present alignment of nations into power blocs, Western, Communist, and Neutral. The details of these power blocs are considered in Part Two, "World Regional Survey." This section presents the physical and cultural settings of the individual political units of the Communist Bloc, the Atlantic Basin States, the Mediterranean-African World, and the western and neutral lands of Asia and the Pacific, and relates to these settings the historical, economic and political developments and their geopolitical considerations. The growth of trends toward supranational organizations is traced in the final chapter, together with a projection of these trends into the future as they relate to a "shrinking globe." Useful and informative maps prepared by Allen K. Philbrick, are liberally sprinkled throughout the book.

H. M. Stanley - Unpublished Letters. Albert Maurice. Philosophical Library, Inc. New York. 1957. xvi and 183 pp. illust. $7.50.

This book, which first appeared in French, in 1955, consists mainly of excerpts from a book of letters addressed by the great explorer Stanley to King Leopold II, his representative Colonel Strauch, and to various colleagues in the Congo during the year 1881-1882, the most important year in the assault on Stanley Pool. In two opening chapters, the author, who discovered the letters in London, synthesizes the historical background required for a fuller understanding of them.

The period involved is ten years after Stanley's meeting with Livingstone and after his descent of the Congo. After failing to stimulate British interest in claiming the Congo Basin, Stanley had contracted with the Belgians to provide communication from the sea to the Upper Congo, to construct three stations, and to launch a ship on the Congo above the rapids. The letters, which reveal the spirited resolve and undoubted organizational abilities of Stanley, fill in valuable detail regarding the de Brazza-Stanley race to the Pool, the earliest days of what are now Leopoldville and Brazzaville, and the wily way in which Leopold II prepared the way for the creation of the Congo Free State. They also reveal much of Stanley: his impatience with inexperienced subordinates, his superior ability in dealing with the Africans, his insistance on avoiding bloodshed, and his ability to get along in the sophisticated masquerade of international rivalry.

---William A. Hance

The Population Ahead. Roy G. Francis, Ed. University of Minnesota Press. Minneapolis. 1958. x and 160 pp. illust. $3.75.

The major portion of this volume consists of nine papers presented at the Second Symposium on Population Problems at the University of Minnesota, with the financial support of the Population Council and the Minnesota Human Genetics League. The editor's scintillating introduction and summaries of the formal comments and informal discussion comprise the remainder. There is an index but no bibliography. Although the writers work in the separate fields of demography, geography, zoology,

botany, physiology, sociology, anthropology, and economics, they explore together the meaning of optimum size, optimum rate of growth, and optimum quality of human population.

In this interdisciplinary approach to a common set of problems, these specialists have produced an astonishing variety of data, expressed in different conceptual terms, from which they deduce an amazing number of generalizations. Most readers will find some new information here. More impressive is the paucity of available data relevant to these problems. Most readers can enlarge their repertoire of demographic techniques from the pooled methodological tools of this venture. Needless to say, the experts at this symposium did not succeed in defining the population optima precisely nor in showing how to achieve such goals.

---Mary Alice Ericson

Malaya. Norton Ginsburg and Chester F. Roberts, Jr. University of Washington Press. Seattle. 1958. xii and 533 pp. illust. $6.00.

To present what the authors consider "a descriptive and analytical basis for understanding a new Malaya," special emphasis is given to the character of Malayan society and its ethnic, social, economic, and political diversities. After a brief description of the physical environment, the history of Malaya, which throughout the book includes both the Federation of Malaya and Singapore, is recounted mainly as a series of outside influences and migrations, each leaving its mark on the culture of the country, and in many cases laying the foundations for serious and as yet unsolved social and political problems. The structure and distribution of the population is examined in detail, as are the transportation and communication systems. Because of their significance in shaping both the past and present character of the country, each of the three major ethnic groups, Malay, Chinese, and Indian, is analyzed in great detail in terms of historical background, means of livelihood, social and political organizations and affiliations, religion, and education. This plural society is reflected in a plural economy, which is considered from the view of products, structure, and general development. The plural society is shown to be equally significant in the evolution and development of Malayan political organization traced from the early 1800's to the eve of independence in 1957. The text closes with a brief summary of the factors that have shaped the present character of Malaya, and a look at its future. A 15-page bibliography and an index are included.

This book is liberally illustrated with maps, graphs, and tables. The treatment of the subject indicates the fact that the book is an outgrowth of an interdisciplinary research project in which geographers played an important role.